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THE COMMERCIAL PHOTOGRAPHER

THE

Commercial Photographer

BY

L. G. ROSE

FORMER PHOTOGRAPHER FOR THE NATIONAL GEOLOGICAL SURVEY;
FORMER PHOTOGRAPHER IN THE U. S. NAVAL GUN FACTORY;
COMMERCIAL PHOTOGRAPHER TO SOME OF THE LARGEST CONCERNS IN AMERICA.

Profusely Illustrated

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PREFACE

Commercial photography has been a difficult subject to get a compilation of facts and figures in this branch of the work and until we succeeded in having Mr. Rose prepare these papers, which originally were printed in the BULLETIN OF PHOTOGRAPHY as a serial, the commercial photographer has been neglected for many years.

Though the variety of work of the commercial photographer is endless, the subjects that are treated in this book are practical and employed in the regular course of business. In fact, theory has been put aside and only actual working apparatus and formulæ such that the photographer may safely use, have been recommended.

The Commercial Photographer

CHAPTER I

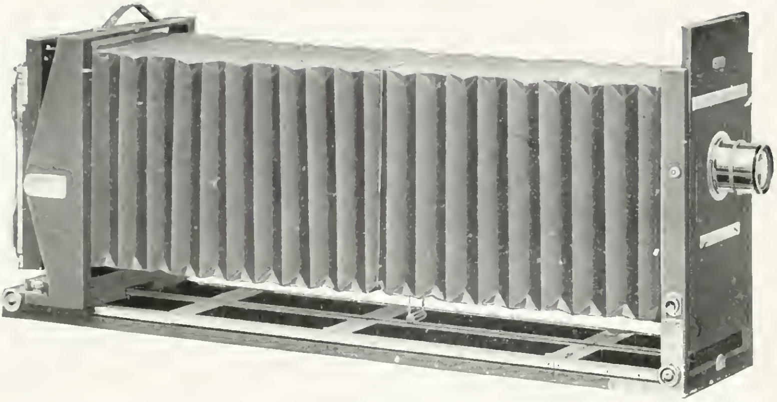
EQUIPMENT

THE scope of commercial photography within the past few years has become so broad that the subject has been rendered practically inexhaustible. In fact, there does not seem to be any line of business, whether it be that of the promoter, manufacturer, advertiser, architect or lawyer, where the use of photographs is not essential, or highly beneficial and a saving financially.

There has been a great deal written in this connection, and for this reason I am not touching on the elementary principles, but only intend the following articles to be a help to commercial photographers in general, as well as the portrait man upon whom occasional or frequent calls may be made for services of this nature.

In selecting apparatus for this work, as the commercial photographer is called upon to photograph anything and everything under all conditions of light and surroundings and yet make good, the first items to consider are adaptability, durability and appearance. It might be well to state here, that appearance is an important factor, for many a good photographer has been misjudged as to his general ability because of a shabby or makeshift outfit. Therefore, the best apparatus that can be obtained will be found to be the wisest investment in the end, and this apparatus naturally varies somewhat according to the line taken up by the photographer. The man in the large city, doing general work, will need a very much more extensive equipment than the one in the small city where the field is limited, or the specialist who does only architectural, legal, animal or some other one-line photography.

Probably the first thing to be considered in the way of equipment is the camera, which, for real serious commercial work, needs to have good bellows length, that is, thirty to thirty-two inches for 8 x 10; a large front board opening to accommodate different lenses and shutters; an excessive double swing, and a rising and falling front. This camera, for quick and sure action, must be absolutely rigid, as well as light in weight for convenience in handling. The specifications of such a camera for both 8 x 10 and 11 x 14 are more nearly met in the Folmer & Schwing commercial camera, although they cannot be said to be particularly light in weight.

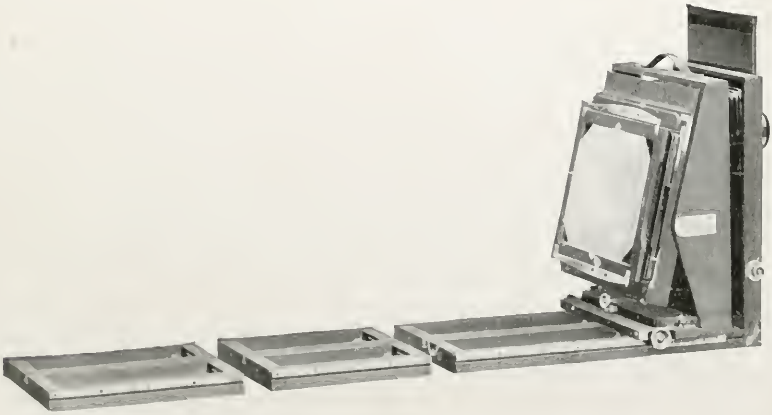


F. & S. Commercial Camera

Another good camera for this work, quite a bit cheaper and somewhat lighter, is the Eastman View No. 2. It has not that excessive swing and some of the other minor adjustments of the Folmer & Schwing, but it is a very good all-round instrument.

The Premo View Camera is another desirable selection. This has the advantage of being still lighter in weight and possesses one excellent feature not found in the two above mentioned, that is, a front that can be tilted forward. This is a wonderful help in photographing interiors from a raised position and is a feature incorporated in all banquet cameras, and the subject of how to use it will be discussed in one of the chapters to follow.

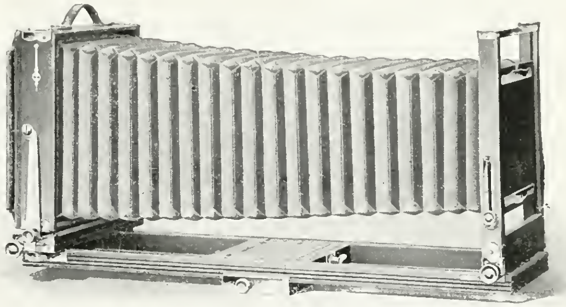
A skyscraper camera, while seldom used, and then only in congested quarters, is convenient to have for photographing tall buildings, but unless one has very frequent calls for work of this kind, the investment, which is considerable, is unnecessary, as the commercial camera, with an extreme wide-angle lens, will do all and more than the skyscraper.



F. & S. Commercial Camera—Showing Sectional Bed

Just a word at this point about camera cases. As those supplied by the manufacturers are usually of canvas, and seldom of a quality to withstand much hard usage, and in a very short time become very shabby, many of the better class operators have their cases made to order by trunk manufacturers to suit their individual needs, and of a material, such as fiber or leather, which will wear well. This also has the advantage of disguising its purpose, keeps the small boys from following, and sets the photographer in a distinct class far removed from the cheap viewman, who carries his camera on a tripod slung over his shoulder.

As for the number of cameras really needed for outside work, three are sufficient, an 8 x 10, an 11 x 14, and possibly a speed camera. The 8 x 10 size will be used both inside and outside the studio the more frequently, as it is the standard size of today, probably due to the fact that it more readily fits office files, is a good size from which to enlarge, and is of reasonable cost to the customer.



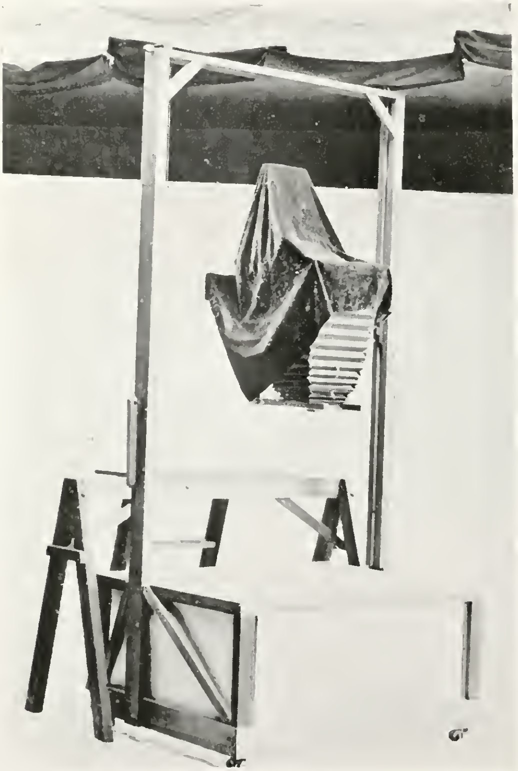
Eastman View Camera, No. 2

As the branch of photography requiring a speed camera is more in line with that of the newspaper photographer, it is not highly profitable to the average commercial man, newspapers seldom being willing to pay what it is worth. By speed camera I refer to something with a fast shutter, which may be either of the focal plane or between the lens type, although, to my knowledge, there is no really reliable ultra-speed between-the-lens shutter now on the market and the choice naturally falls to the focal plane.

However, if there is demand for such an outfit, which would be the case in animal and marine photography, it is well to adopt the method pursued by many of the speed operators of today, that is, to use, for instance, a 3¼ x 4¼ Graphic with a direct view finder and a good speed lens, and then enlarge to the standard size of 8 x 10. In this way one has the increased depth of focus of the shorter lens over 5 x 7 and 8 x 10. The first cost is considerably less, as is also the cost to operate, and it is light and easy to carry, all very desirable elements.

Several of the leading newspaper and magazine photographers with whom I have come in contact carry their entire outfit, including tripods, backgrounds, flash, plate-holders, etc., in a small traveling bag, a complete and, oftentimes, very necessary disguise, and this would be practically impossible with the larger sizes of cameras.

For work in the studio, which is a large part of profitable commercial photography, a substantially built camera is needed, and should be fitted with a stand permitting of every possible adjustment and ease of control. Spare no expense in this connection and you spare your disposition in the end, for nothing is so annoying, especially when haste is in order, as to have a camera stand fail to work properly and respond quickly.



Vertical Camera

This camera should be equipped with horizontal and vertical swings, extremely long bellows, that is, sixty inches at least, and a rising and falling front, although the latter will undoubtedly have to be constructed by a cabinet maker, as such feature is rarely found in studio cameras at present on the market.

As to size, while in some studios in the larger cities, especially those doing color separation and large merchandise work, plates are used as large as 16 x 20. The average man can do very well with an 11 x 14, with an adapter for 8 x 10 and holder kits for 10 x 12 plates.

This apparatus may also be used for copying, but it pays to have a regular copying outfit (there are many on the market constructed solely for this purpose) if much of this work is done, and should there be much vibration in the building in which the studio is located, it will be found very desirable to hang the camera and copying board from springs.

It might be well to state here that copying, if skilfully and efficiently done, is highly profitable, many concerns being willing and glad to pay almost any price for good copies of poor originals, especially in patent and other legal cases.

We next come to a piece of apparatus which, I am sorry to say, is not frequently found in commercial studios, although really a necessity, and that is a vertical or upright camera. To my knowledge there is none manufactured, and it has to be made to order.

In the larger studios of cities like New York, Chicago, St. Louis, etc., which are jobbing, and therefore commercial photographic centers, one finds very elaborate vertical outfits wherein control is had of the platform in every way from the camera above, but for the average commercial operator the outfit illustrated answers every need satisfactorily, I think. I have used this apparatus with considerable success for some time, and it has many advantages, among which might be mentioned the fact that it is cheap and easy to construct.

A vertical camera is practically essential for modern merchandise work, such as cut-glass, candy, cigars, machine parts, in fact, anything which must be laid out flat, and I know of one of the largest studios in the country which makes all copies on such a camera.

The camera illustrated is equipped with a 40″ x 50″ ground plate glass, and the lower part is enclosed with compo-board and fitted with electric bulbs at points designated, the purpose of which will be taken up by me later. Any size view camera may be attached by means of the tripod screw to the cross piece, and the whole is counterbalanced by weights as shown. The ground-glass frame is removable and may be substituted by one of wood for the photographing of heavy machine parts not supportable by glass.

TRIPODS

Tripods for commercial work should be of the strongest and best made types obtainable. Two, at least, are needed for each camera, one of regulation size and the other ought to be at least 12 feet. I take mine to a machinist and have extra heavy screws inserted, as it is most annoying to have one give way at a critical moment. The Folmer & Schwing Crown tripod gives very satisfactory service.

It is also well to have these tripods equipped with a tilting top, as this is oftentimes required when making photographs showing progress in construction and excavation work.

ARTIFICIAL LIGHT

The matter of artificial light for interiors is one of considerable importance, and we have the choice of either flash (bag or open) and electric lights.

Of the bag types, of which there are many on the market, the Victor, Prosch or the Halldorson are undoubtedly the best selection for commercial purposes, although some operators make their own bags.

There are numerous types of open flash, commonly known as "bang lamp" from the single hand lamp to elaborate multiple types, but the Caywood is my preference from long experience. I have always avoided the cap lamps. The cap is never found when needed, especially when several operators have access to it, it does not always explode, and a little dampness completely puts it out of business, while there is rarely any trouble with the friction metal type.

In photographing heavy machinery, foundries, warehouses, etc., where a "quick and dirty" job is permissible, a blow lamp has no equal. But a good blow lamp is a treasure indeed, for I have never seen one which, with continuous use, does not clog up, melt, or do something equally troublesome at a critical moment. The Prosch people probably make as good a lamp of this kind as any on the market. Many photographers make their own blow lamps, and a little tip in this connection is to use what is known as jewelers' hard solder, as it will withstand extreme heat.

As building superintendents, fire marshals, etc., are beginning to strongly object to flash, and, in fact, it is barred from many buildings entirely, the more modern method of photographing interiors is to use electric lights. Among these we have the carbon lamps, such as the Panchroma, Northern, Majestic, MacBeth, and the incandescent type, that is, the Mazda and Nitrogen filled bulbs.

The Northern and Panchroma give a very strong concentrated light and are excellent for many jobs, such as indoor groups and general studio work, but they have the disadvantages, to my mind, of the danger of burning carbons dropping out, the necessity for excessive current, and the further fact that they are quite heavy.

My choice, from many standpoints, therefore lies in the Mazda or Nitrogen type. The lamp I have used for practically three years and like very much is the Johnson Compact Ventlite, which fills every need with the exception of strong light for speed stuff. These can be attached to practically any light socket, and choice is had of two types of bulbs, the clear and the blue or daylight bulb. For ordinary commercial work I have found the clear bulb the most satisfactory, but for groups and model work the daylight bulb has given the best results, as it is not so blinding. A two-lamp Johnson outfit complete weighs but 26½ pounds. One can therefore judge its ease of portability.

CHAPTER II

LENSES

IN discussing this subject, I will take up only those lenses which have been found most practical in commercial photography.

Lenses used in this connection must have extreme covering power, good depth of focus and fine definition. Anastigmat lenses are, of course, the best for this purpose, although the rectilinear type does very well in many instances.

If one can stand the expense it is mighty convenient to have a battery of lenses, but I would rather have a few and know their good and bad qualities and limits thoroughly than a large number with which I was not entirely familiar. I have so often seen very good lenses lying idle and condemned because the owner did not know how to use them. This applies to portrait as well as commercial photographers, and only goes to show that it is not the lens but the "man behind the gun."

For studio work a long focus lens is very necessary, especially in photographing furniture, pianos, and the like, and this should be an anastigmat if possible, although an anastigmat lens of eighteen to twenty or twenty-four-inch focus runs into considerable money. Nevertheless, it is a good investment. This lens should also be corrected for color, otherwise it would not give the proper results when used in connection with ray filters or arc lights.

Several of the older shops use some of the old-type lenses, such as the Sutor, Somerville, Dallmeyer Rectilinear, etc., but the only advantage I can see in these is that they are cheap, and while they give very good definition when stopped way down, they have not that crisp definition of the Goerz Dagor, Cooke Series V, Turner-Reich, or Bausch & Lomb II-B Tessar, Wollensak Velostigmat and other more modern types.

While there are possibly many other lenses on the market which will do the same work very nicely, I know from experience that those just mentioned are entirely satisfactory.

A good feature in a studio lens, even though not often used, is that of convertibility, as it is often absolutely necessary to have an extreme long focus lens.

For outside work a medium focus lens, that is, about twelve or thirteen inches, two of short focus, one extreme and the other, say, a Series IV Bausch & Lomb Protar, and then a lens of eighteen- to twenty-inch focus is needed. I am not in much favor of convertible lenses for outside work where but a single element is used, as they have to be stopped down so far that they are slow, and barrel or hour-glass effects develop that are anything but pleasing to a critical person, such as an architect or engineer. For this reason a "regular lens" is advisable if one can afford it.

Another lens needed when making enlargements direct from small copy or objects, and one which I have found highly satisfactory, is a moving picture lens of about two- or three-inch focus used in connection with a long bellows camera. It gives fine results.

An extreme wide-angle, such as the Goerz Hypergon, is a lens for which there is but little use unless one makes a specialty of photographing large buildings in congested districts. However, a lens of this type or a Series V Protar necessarily must be used in connection with a skyscraper camera, for the reason that the lens is often above or below the center of the plate and therefore has to cut more than the size of the plate.

In photographing interiors a wide-angle lens should never be used unless the quarters are very cramped, as the result is far from pleasing to a customer, although he may not know the reason. It is better to use two or more plates.

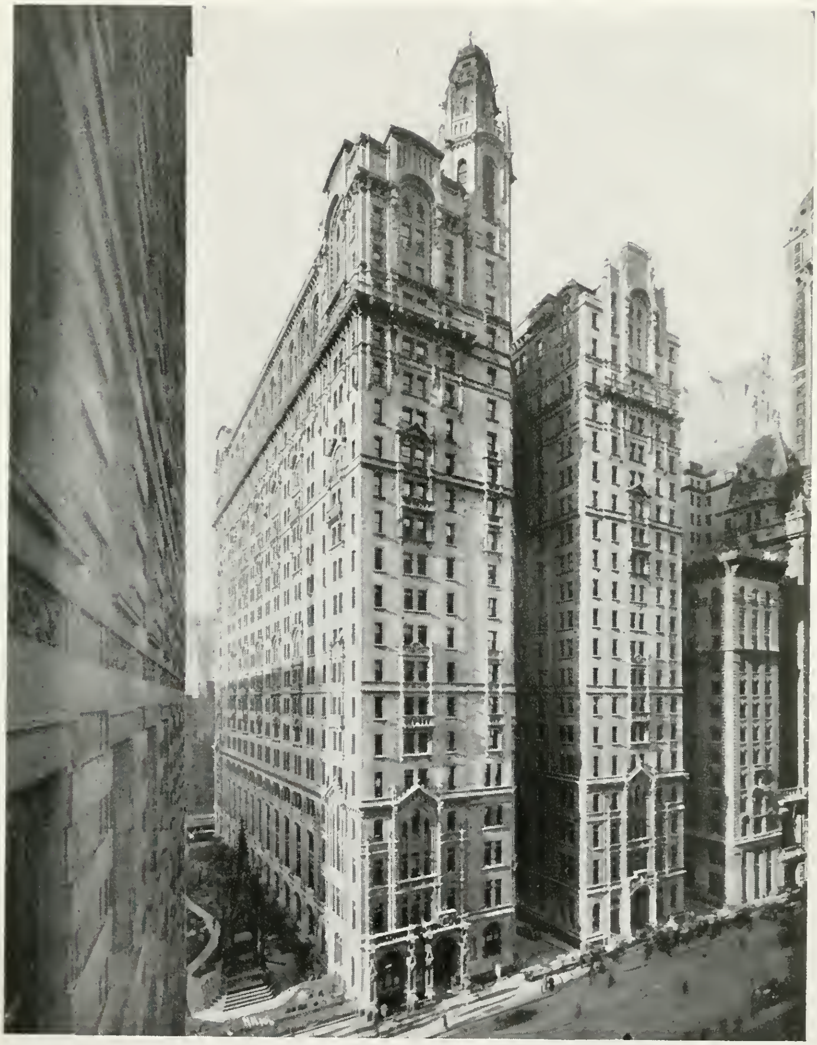
It has been found that some of the better classes of anastigmat types make very good wide-angle lenses when, for instance, a 5 x 7 is used on an 8 x 10 or an 8 x 10 on an 11 x 14 plate. In this connection it is well to know that a 12-inch lens may be used very satisfactorily on a 12 x 20 plate. I have made many banquets with 12 x 20 plates, using a 12-inch Goerz Dagor lens. There is, of course, some distortion at the edge of the plate, but the general effect is good.

A lens of soft focus is very nice to have on hand, as every now and then one comes onto a customer, such as an advertising concern, who does not like the old sharp stuff, whereas a picture made with a soft focus lens just appeals to his artistic senses. As a lens of this type is not always available, this little tip may not come amiss: a small piece of black marquisette veiling, tied over the front of the lens, gives a very good imitation.

In commercial studios, where different sizes of lenses are used, ranging from the small wide-angle to the large long focus types, it is somewhat of a task to keep track of the different front boards and lens flanges to fit various cameras. The following are two good systems which are used in two large studios with success.

The better system, to my mind, is to have a master flange attached to the front board of each camera, both indoor and outdoor, this master flange being really the flange of the largest lens used. The other lenses are then fitted with a permanent flange or metal collar which will screw into the master flange. In this way there is a master flange in each camera at all times, and any lens in the shop, in view of its permanent flange collar, will fit any camera. The cost of installing this system is nominal, and any machine shop can do the necessary work.

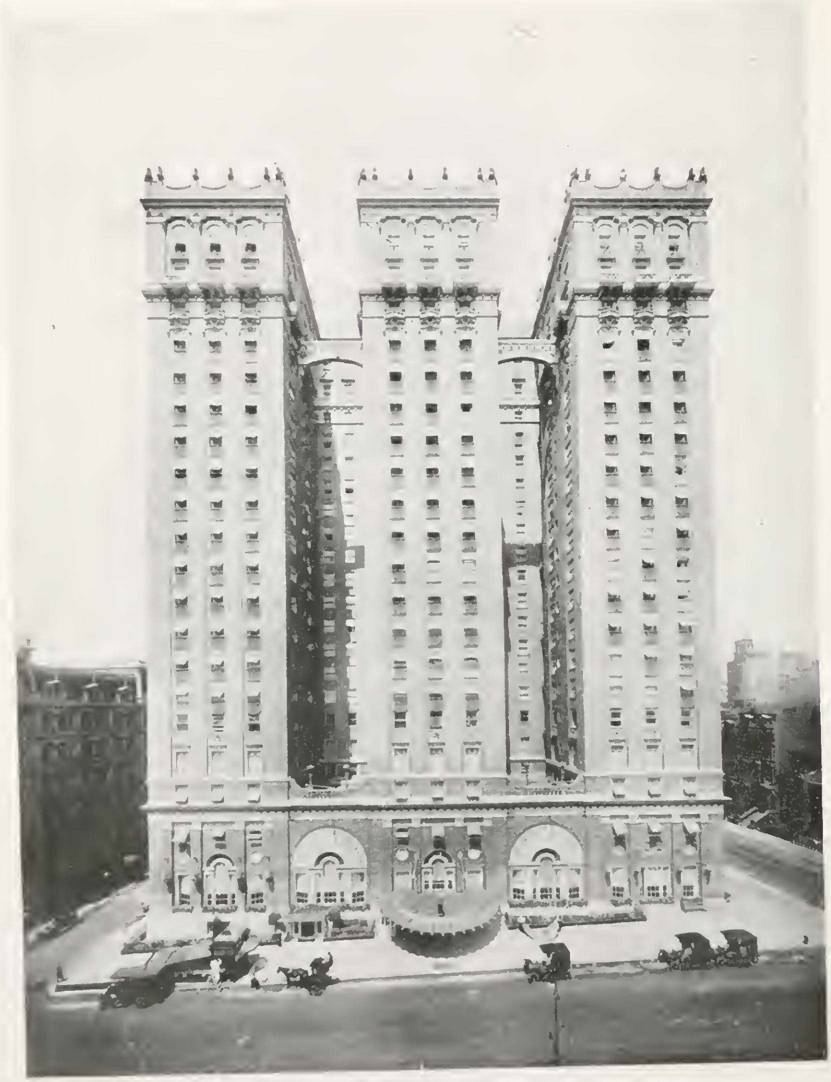
The other method is to attach permanently a wooden front board to each lens, this smaller front board being of a size to fit into what might be termed the master front board of each camera. In this, as in the above case, the lenses are always ready for any camera without any delay.



TRINITY BUILDING, NEW YORK

© Pictorial News Co., New York

Made with Goerz Hypergon lens. This does not show the Hypergon at its best, that is, the violent perspective is too clearly evident, although it was probably the best view obtainable.



HOTEL VANDERBILT, NEW YORK

Made with Goerz Hypergon lens under nearly ideal conditions. This is where a Hypergon lens is a real need.

CHAPTER III

PLATES AND FILMS

A GREAT deal of the success of the commercial operator depends upon the proper selection and handling of plates, as he is called upon to make pictures in all sorts of places and many times has no previous knowledge of what he is going up against.

Therefore, the plate with the most latitude and, at the same time, ability to give snappy high-lights, with detail in the shadows and with the least manipulation in the dark-room, is the plate to select.

Such plate should be of the non-halation or double-coated type, such as the Seed or Cramer Non-Halation, Hammer Aurora and the Standard Orthonon.

It will be found that the plates mostly used by the portrait photographer, that is, fast, single coated, and many times thin emulsion without orthochromatic properties, are not suitable for the general run of commercial work for several reasons, the chief of which is that they do not possess enough latitude for the average interior, exterior, or set-up work.

Of course, these latter plates are very good for some studio work where live models are used, and occasionally there will be a demand for a plate like the Stanley Commercial in cases where there is no possibility of halation, this also being single coated.

Within the past few years rapid strides have been made in the emulsions for cut film, and for the past year I have made practically everything on film, with the exception of color work, and do not think I could ever consider going back to the employment of plates exclusively.

Films are much lighter in weight, easier to store and handle and very convenient for mailing, as loss due to breakage is eliminated. They possess good non-halation qualities and, last but not least, they are not as expensive as double coated plates—quite an item in a year's time.

While considerable objection has been raised to the use of films by many commercial photographers, who claim that they are difficult to block, strip and insert titles, etc., it is quite easy to change methods to accommodate films, and their advantages more than compensate for the added trouble.

I might state here that, though good non-halation qualities are possessed by films and many double-coated plates, especially those double-coated plates which have for their under coating a slow emulsion, they require the exercise of intelligence, as well as careful handling.

For outside work no better selection can be made than a film or non-halation plate, because buildings and trees, outlined against the sky, are a source of considerable halation. Where photographs are made from the shadow side with good detail demanded, Commercial Ortho film is very good, although it is a little slower than the Portrait film, but has more body. The Seed Non-Halation or Standard Orthonon plates also give very satisfactory results along this line.

Non-halation double coated plates or portrait film should best be employed in the photographing of interiors.

Oftentimes, when including life in an interior photograph, that is, clerks at their desks, workmen at their benches, etc., and possibly toward direct light, where a very short exposure of, say, 10 to 20 seconds is necessary, one will need Graflex plates to give the desired increased speed.

For furniture, stoves, pianos, and general merchandise work there is nothing much better than the Standard Orthonon or other double coated plate and Commercial and Commercial Ortho films.

For copies the selection of the best plate or film depends upon the effect desired. If contrast is to be increased Commercial Ortho film should be used, while if less contrast is wanted portrait film will do the work.

When a process or other plate is used for line copies, to give the best results, that is, do away with halation, it should be backed. The process film now on the market is very satisfactory for line copies—in fact, it is better than the average process plate in view of the resultant absence of pin holes and other annoying defects.

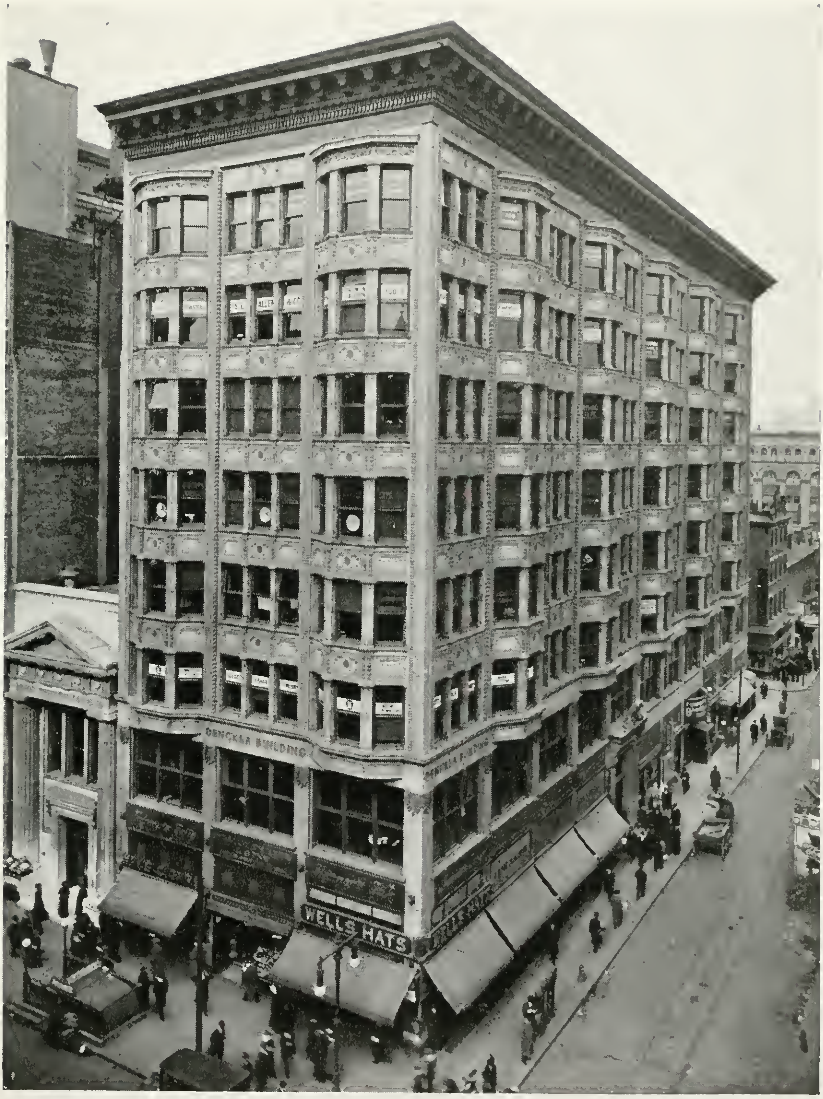
For speed work outside one needs the Seed Graflex, Lumière Sigma or Hammer Red Label. However, although very fast, the Lumière Sigma is a very difficult plate for many workmen to handle, because the grain is coarse and it tends toward extreme contrast. Also, the emulsion is easily frilled.

For all colored subjects, especially those containing reds and greens, the Wratten Panchromatic or the Cramer Spectrum are very necessary to good results.

I find many photographers, including some commercial men, are timid about using these plates. Possibly they gave them a half-hearted trial and cast them aside, or have been told that they were hard to work. Color plates have made a wonderful progress in the past two years, and if you had anything against them, give them another trial.

I will also say right here that, if conditions arose whereby I had to confine myself to one plate for all my work, the Wratten Panchromatic would be my choice, as I consider it the best all-round plate on the market today, although a trifle higher in price. It is a single-coated plate with very thin emulsion, has a wide exposure and development latitude, fixes and dries rapidly, is backed and is all-color sensitive. It lends itself very quickly to plate manipulations, that is, intensification and reduction, both mechanically and with chemicals, and is a very clean working plate.

I may seem a little over-enthusiastic about this plate, but I am quite sure the same opinion is shared by many other workmen, and is formed from considerable experience.



No. 6 Goerz Dagor, 8 x 10 lens on 11 x 14 plate. Exposure, *f* 16; 1-5th second.
John Fitz, Jr., Philadelphia

There is a great deal of work, such as furniture, pianos, and some copies, that will need a yellow filter—that is, yellow correction. For these, you will use a plate that is sensitive to yellow, such a plate being the Cramer Iso, Standard Orthonon, Commercial Ortho film, and, of course, the Wratten Panchromatic.

For flashlight and blow-lamp work, to obtain the best effect, the plate should be at least a little sensitive to yellow, and possess all possible speed. The leading workers in banquet photography and high-class flash work use the Imperial Flash Light, a plate of English manufacture. Portrait film takes its place very well.

Too much stress cannot be placed on the benefits to be obtained by backing the ordinary plate, even though double-coated. While it may seem a great deal of extra work to do this, I can assure you that it pays and you will find that many of the leading operators back all their plates, or use films. A negative made on a backed plate has much more crispness and brilliancy than an unbacked negative.

There are many backing formulas, but the one I use and like as well as any, and one which is quickly and easily put on, is ordinary opaque. The best way is to apply it to the glass side of a plate with a wide brush and then place it in a drying-box until thoroughly dry before inserting in the plate-holder. If in a hurry, though, just slip a black piece of paper over the wet opaque, smooth it down and insert in the plate-holder. This latter method may be a little hard on the plate-holders, which makes the drying-box plan preferable.

In a chapter on dark-room work, I will go into more extended detail as to the handling of various plates to produce the best results.

In the matter of plates and films, as in lenses, it seems to me far preferable to have two or three varieties that one knows thoroughly than a large assortment with which one is not entirely familiar. Every make of plates has its peculiarities which can be used to one's own advantage in work of various kinds, and it is better to know your plates and films well than to work in a hit-and-miss fashion.

I have found that I can obtain much better results by using as slow a plate as a particular piece of work will stand. In this way, one has more latitude and it is cleaner working.

It is surprising how good some of the old-timers used to get their negatives on a very slow plate. I had the privilege, a few years ago, of looking over the Brady Collection in the War Department at Washington, which was made in Civil War times, and was very much astonished at the wonderful results he obtained with that slowest possible type of plate—the wet plate. The work that was done on the first dry plates, twenty-five to thirty years ago, was also remarkable, so one can but come to the conclusion that it is not so much the plate as a knowledge of how to work with what you have. The photographers of years ago had but little choice and they learned to make the most of it.

CHAPTER IV

EXTERIORS

MANY commercial men have gotten their start in the business by photographing exteriors and gradually working into other lines. One of the principal reasons for this is undoubtedly due to the fact that it forms a fascinating study to most amateurs and semi-professionals—hence, it is probably more generally followed than any other branch.

Furthermore, it is exceedingly profitable when one has for his patrons high-class architects, decorators, or wealthy owners of beautiful homes and surroundings.

Unlike other lines, in exterior work, the principal factor is time of day, for a subject may be so photographed as to look entirely different under different conditions of light, and the changes caused thereby form a very interesting study.

As most photographers, whether portrait or commercial, are fairly well acquainted with exterior work, it is hardly necessary to go into minute details as to general procedure other than to touch upon a few points.

In deciding upon the point of view, from which to photograph any building, it is usually best to select that including part at least of the side, and either a non-halation plate, Portrait or Commercial Ortho film is a good selection for this work. The exposure will vary according to the time of day and year, and weather conditions—one second, stopped *f*64, is a fair average.

With reference to homes and gardens, this class of work brings one into contact with a class of people who appreciate the really nice things of life, and to whom price is not of much consideration. It is a subject about which volumes could be written, and the best method I know (and a source from which more information can be obtained than any other) is to consult the books and magazines to be found in any public library on homes and gardens. The customer usually knows just what he or she wants, however, and the photographer can be guided to a great extent by the instructions and by his own common and speculative sense.

Architectural photography is greatly in demand in the larger cities, and, in fact, there are a large number of specialists in this line in places such as Chicago, New York, Boston, etc.

An architect is principally interested in a picture of the whole building and details such as friezes, entrances, columns, fireplaces, doorways, mantels, ceilings and stairways.

If you have never done any of this kind of work, it would be well to consult the large files of prints which most architects have on hand, and which will give you the best idea of what they demand. However, the most important point is to give them exactly what they request, no matter how foolish it may seem, but be sure you know just what that is, for they are often more particularly interested in some one little detail. I have in mind now a customer for whom I went to a great deal of trouble to obtain the photograph of a clock over a doorway. I then found it was not the clock he really wanted, although he specified that at the time—it was the eagle on top of the clock.

In the matter of a lens, the longer its focus, the more you are liable to please, for, as a general rule, they will tolerate no distortion.

Construction photographs are used a great deal both for records and for advertising and promotion purposes. What it requires really is a good lens that will give critical definition, because detail more than anything else is what is wanted. Complete instructions as to size of prints, titles, etc., are usually furnished by the construction companies, as well as specific instructions as to time of day (these photographs are generally made on the same day each week or month) and point of view, so that the work can be handled very nicely by the average commercial man, and is rather profitable.

However, should the selection of point of view be left to the photographer, the view should be one from which he can include the whole building, say one

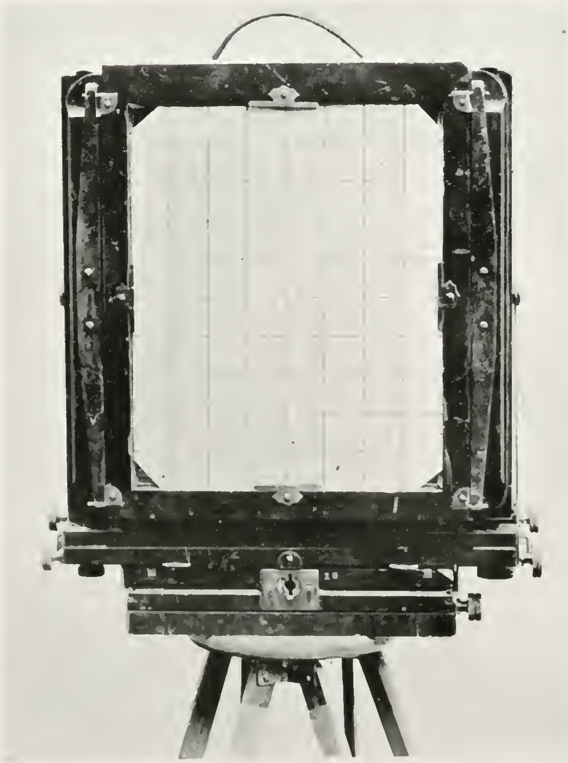


Fig. 5

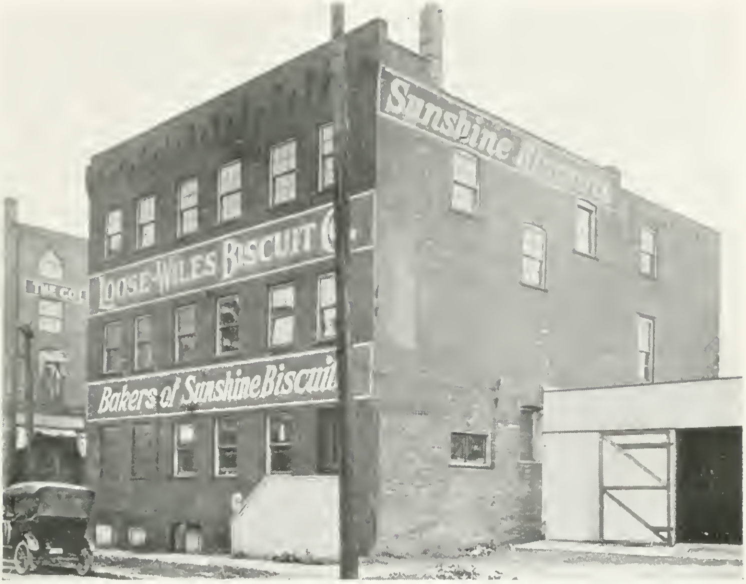

Sunshine
LOOSE-WILES BISCUIT CO.
Bakers of Sunshine Biscuit

Fig. 6 A

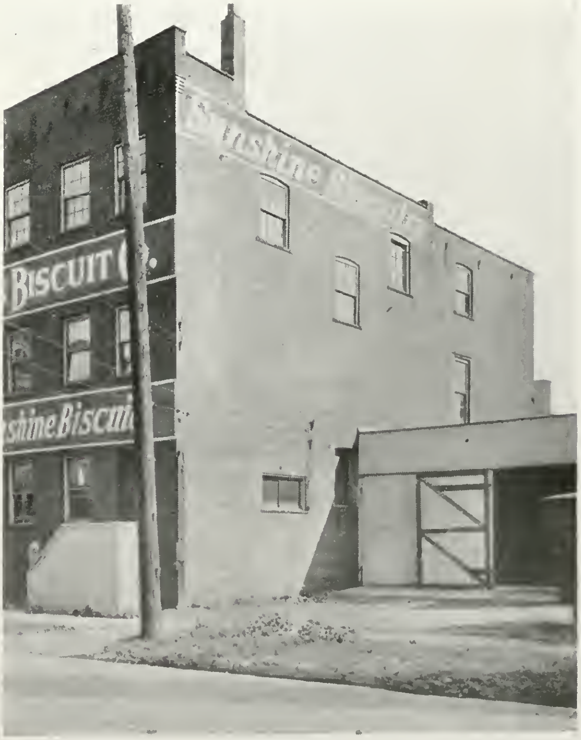

Sunshine
BISCUIT CO.
shine Biscui

Fig. 6 B

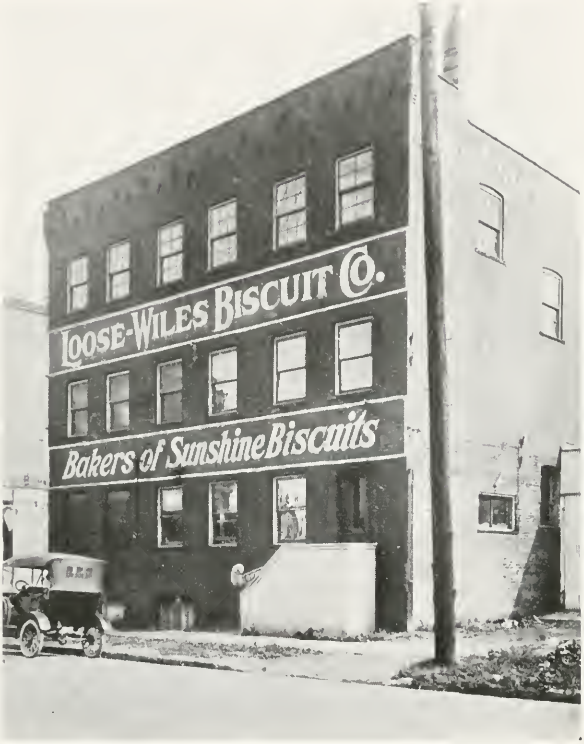


Fig. 6C

of ten stories, from the time the foundation is started until the building is completed. Otherwise, it may be necessary to use a lens later on that will destroy the effect desired.

In making photographs where distant views of hills, trees, buildings, or harbors, etc., are included, as well as in construction work, it will be found that the use of a ray filter, for instance, the K-2 or G, is a wonderful help when used in conjunction with yellow-sensitive plates or films, as it cuts out the blue haze, thereby giving better distance, and also a much better general color value.

Another great help in outdoor, as well as indoor photography, is to have the ground-glass ruled as shown in illustration Number 5. This enables you to line up your camera quickly, and where the lines of your picture must be absolutely correct, gives you a sure means of checking up yourself without any loss of time.

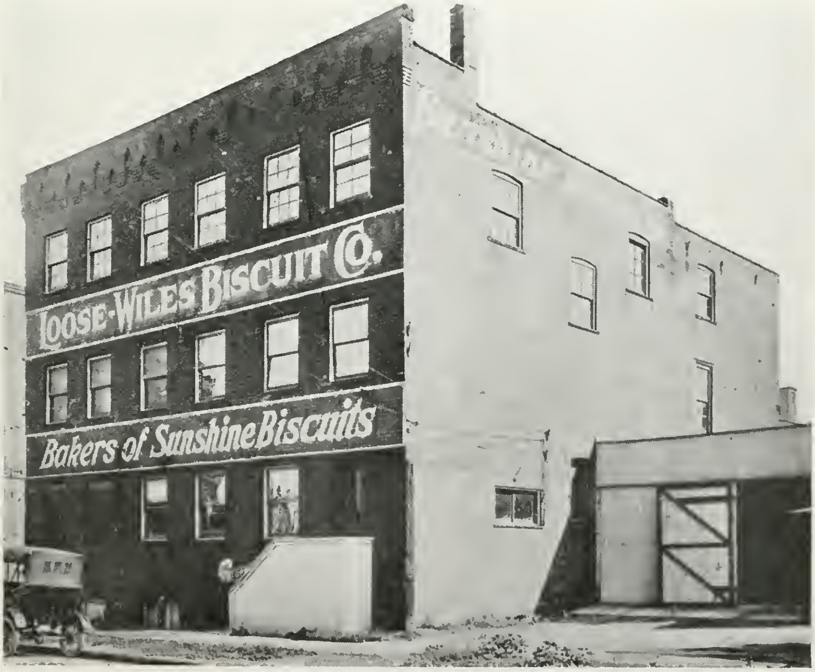
There are also a few tricks, or stunts one might call them, that can be worked to advantage and generally will distinguish a clever from an average operator.

In photographing buildings, especially in the manufacturing and jobbing districts, there are oftentimes objectional lamps or telegraph posts or signs, etc., in direct line of view, which the customer would like eliminated. Of course, this can be done by art work, that is, retouching on the photograph, but that is expensive, and if the photographer can do this in making the negatives, it not only puts a feather in his cap, gives him leverage to charge better prices, but makes himself "solid" with his customer.

In illustration Number 6, the large telegraph pole obstructs the view objectionably. To eliminate that post, two negatives have been made, one to the right and the other to the left of the pole, about fifteen feet apart. The two photographs have been joined together and copied and the result is really mystifying to the average customer. While an old and simple stunt, it is one well to be remembered.

Number 7 is the photograph of a hotel on a busy downtown corner, with street cars, automobiles and pedestrians constantly passing. It had to be made at noon for the right light, and to get out of the range of the traffic, I worked from the corner room on the third floor of a building on the diagonally opposite corner. It was necessary to make it in two negatives (prints joined on the corner of the hotel building) and these were made from two windows facing different streets about fifteen feet apart. The result was very satisfactory.

It will also be noted that while this picture was made at a busy time, all life was eliminated, and this was accomplished by closing down the diaphragm of the lens (an 8 x 10 Series IV Bausch & Lomb Protar) to the limit, which brought the exposure up to about one minute for each plate. This is a very



The Complete Photograph. Fig. 6 D

good thing to keep in mind, especially when it is desirable to eliminate all life from a photograph.

One thing well to be remembered in receiving orders to do any particular piece of outdoor photography, or any other line for that matter, is to inquire the purpose for which the photograph is to be used, and just what they want. Thus, in doing the work, the photographer can be guided by this information, as an architect may require one style of picture, an owner another, the promoter still another, and, in the case of a home, the wife may have her own ideas which she wants carried out.

It will also be found, especially where the customer is not a frequent user of photographs, that his conception of what the average photograph will take in is often ridiculous, and that he expects the operator to take in all he sees, despite the fact that he moves his eyes around in taking in the view himself.

It is often the case that one will find an ornamental lamp post, tree box, or the like, directly in front of a building, and a direct front view is wanted. It may also be impractical to make it in two negatives, in which event, the following diagram may be of help in evading some similar objectionable feature.

A, in Fig. 8, represents the store, B the lamp post and C the camera. The camera should be set up in such a position that the direct line of view just passes

8 x 10 B. & L. Series IV, Protar Fig. 7

the obstruction and includes the entire front of the store building to be photographed.

The size camera generally used for a stunt of this kind is, say, a 14 x 17 with a 5 x 7 or 8 x 10 plate in a special cardboard kit placed at a point where the image of the store front strikes the ground-glass. A comparatively short focus lens should be used, which will give the necessary wide-angle effect, and it should be stopped way down so as to insure its covering the plate inserted.

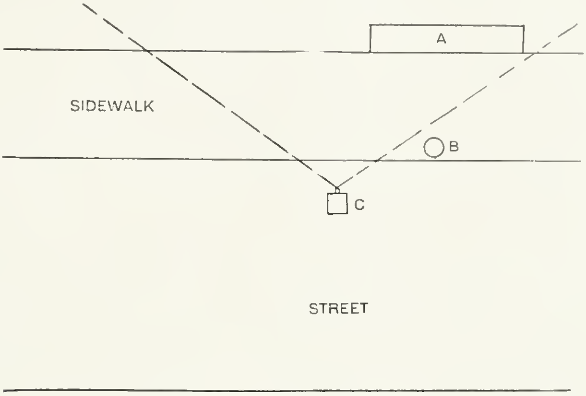
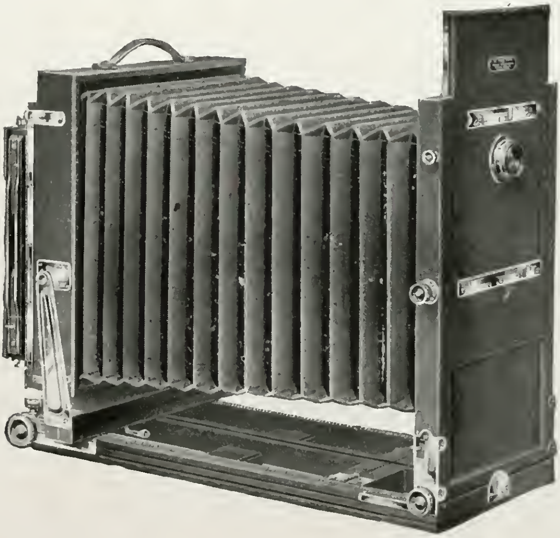


Fig. 8

The resultant negative will show a straight front view of the building and can be enlarged to the size desired by the customer. In other words, make a wide-angle view of the section of store buildings, including the store, photograph of which is wanted, and enlarge the small image thus obtained.

In this connection, it is often the case that a very nice little order for panoramas can be worked up to the financial advantage of the photographer, and the ultimate satisfaction of the customer, if the matter is handled tactfully.



The Skyscraper Camera

CHAPTER V

INTERIORS

WHILE one has many difficulties to overcome in photographing interiors, it is a branch that is, as a general rule, well paying, dignified and, at the same time, extremely interesting.

Being closely identified with exterior work, the photographer will have practically the same customers for interiors; that is, the promoter, architect, real estate operator, factory heads and the home owner.

In the case of the promoter or factory head, he will want to show as much life and activity as possible, even going so far as to pad the picture by bringing more fixtures and life from other departments. The architect will want absolutely no distortion (which eliminates the wide-angle lens), and the real estate man or owner of a building will want to show how light and airy and commodious the property may be, and in practically every instance, the photographer will have the problem of halation confronting him.

Halation, as many photographers know to their sorrow, has destroyed the appearance of some of the best of negatives. In combating halation, double-coated plates help, as do also films or a backed plate. It is often the case that a developer with a very weak percentage of carbonate will help, but this has the disadvantage of taking a long time to develop. Also, it requires from three to four or five times more exposure than normal, which means that it is practically impossible to include any life—and, when you get through, you have a flat, lifeless negative, which may possibly take the whole printing force to turn out a good salable print. Such a method would be strictly taboo in a large studio where time and overhead expense are important factors.

The only really successful way I know of to satisfactorily eliminate halation is to balance your light. What is meant by that is this: if you are facing strong light, use a strong, artificial light against it from your camera side. Of course, this can be overdone, but, if one is careful and a backed plate or film is used, no apparent halation will be found.

The length of exposure will also be found a matter of considerable importance in avoiding halation, and if sufficient exposure is given to permit of rapid development in the dark-room, less halation will appear.

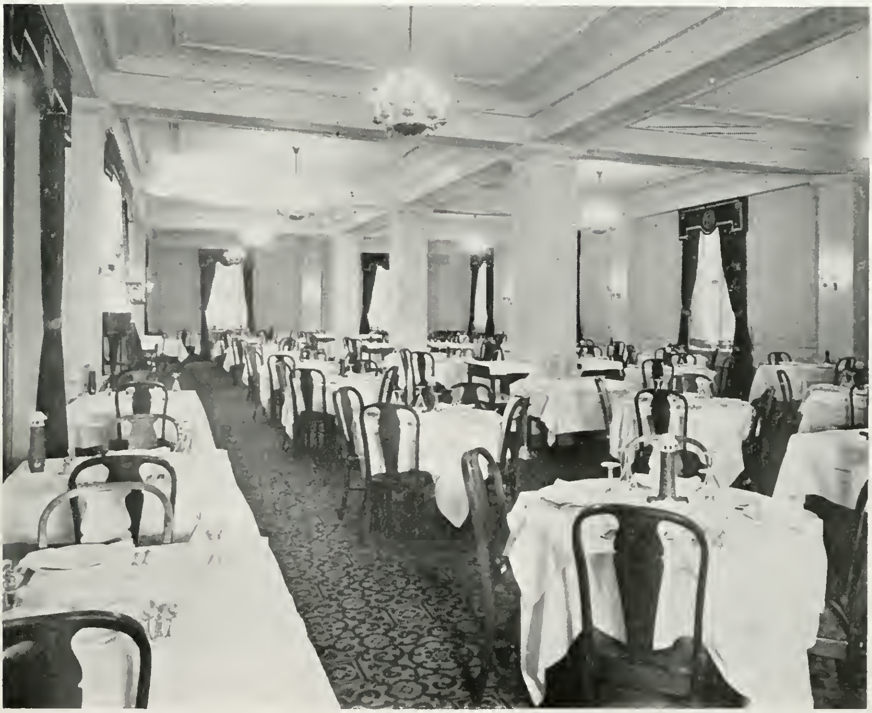
However, in many of the better class homes one will find the lighting conditions to be very subdued normally, the effect of which will have to be preserved in the finished photograph, and for this reason, the operator will have to be very careful in his use of strong artificial lights, or the result will be unnatural, and therefore not pleasing to the customer, even though he might be unaware of the cause. In such cases, just enough artificial light should be used to pick up the detail in the shadows.

I have found that the electric lights which I use on all my interiors—the Johnson Compact Ventlite mentioned in the first chapter—are very successful for such work. These lights produce such an even lighting, especially when used with the diffuser attached, that a glary, concentrated lighting is avoided, and yet is sufficiently strong to overcome any tendency toward halation.

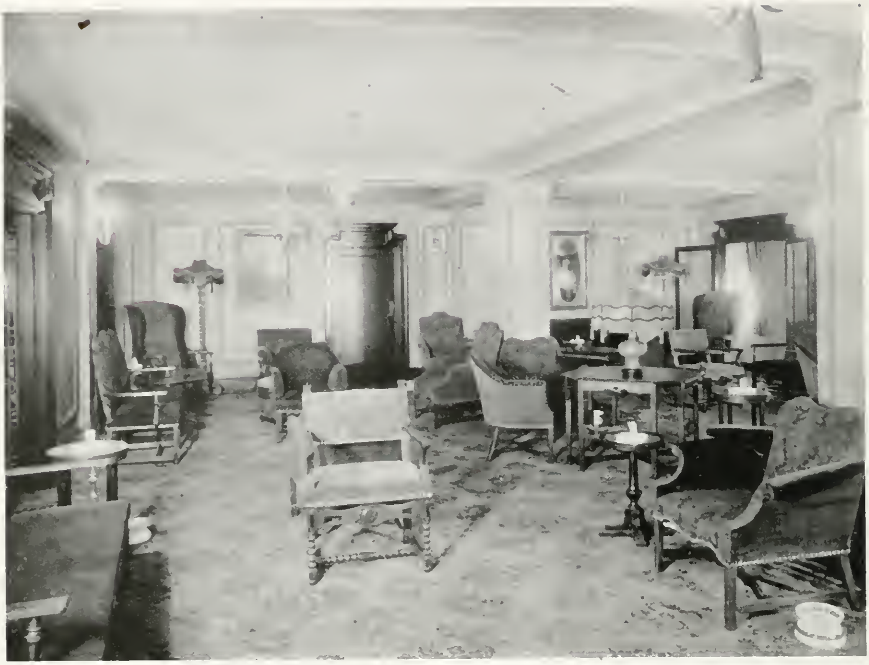
There are several other methods which may be followed when windows are in direct line of view, such as drawing the shades for part of the exposure, or fitting collapsible opaque screens, which are carried by some operators, into the windows, but I have found that using electric lights to balance the light produces much better results.

I have found these lights also a great help when facing the light in the photographing of offices. In this latter connection, when life is included in the picture, it is well to get as much action in close to the camera as possible, and a comparatively fast plate, such as a Graflex, will be found the most satisfactory to use.

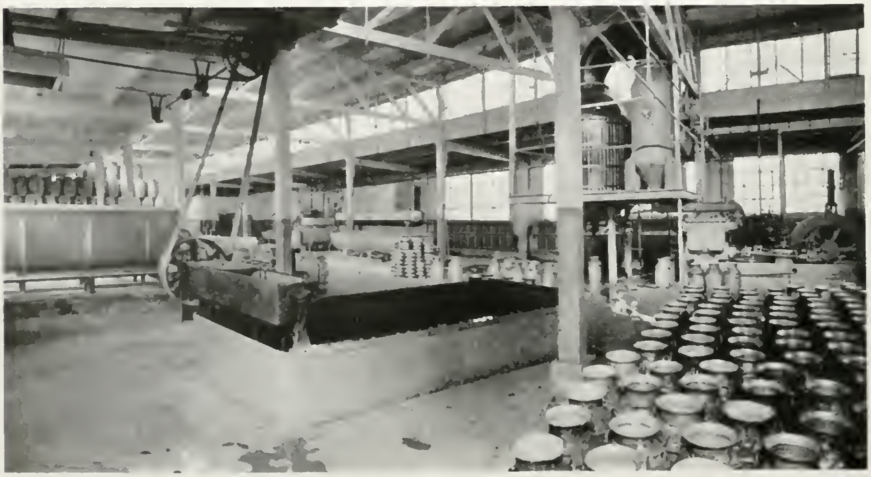
In factories where men are shown at their work, a blow-lamp or other strong light preferably should be used, because a time limit is usually set and it is a bad policy to keep men away from their work long, as the discipline of the shop is easily upset. Therefore, the sooner one can get through, the better,



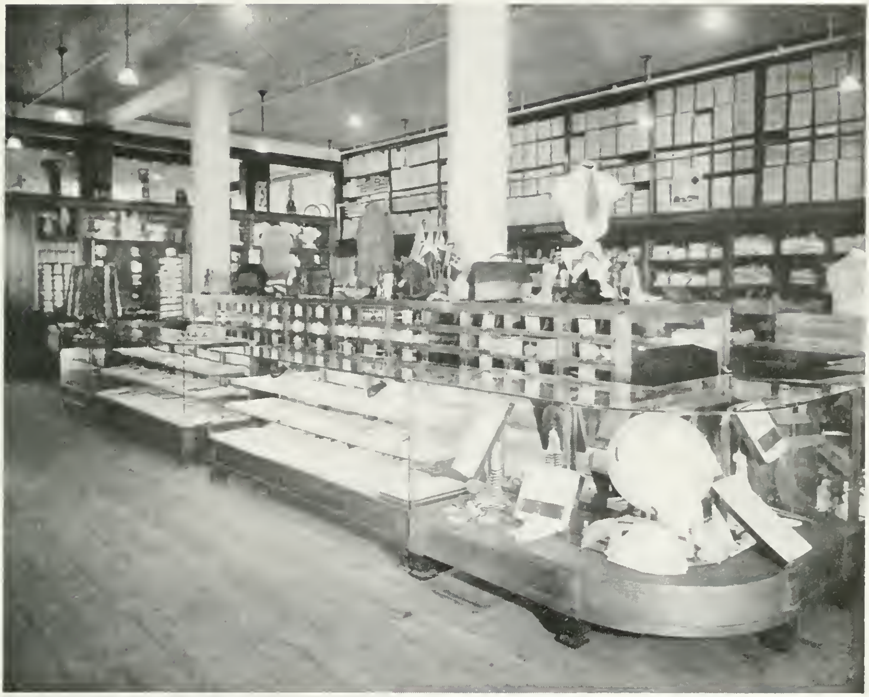
10 Minutes' Exposure, *f*32. Fig. 9



Panchromatic Plate; 2 Minutes' Exposure, *f* 32. Fig. 10



Portrait Film; 1 Minute Exposure. Fig. 11



B. & L. Series IV; Backed Standard Orthonon Plate; Fig. 12
3 Minutes' Exposure, *f* 32.

and as smoke is generally of no consideration, the blow-lamp or flash are not objectionable.

A little point here may be of interest. If you are using a blow-lamp to make a picture with people included, it is best to start the lamp, that is, to blow the lamp before you take the cap off your camera or open the shutter. When the flash first starts, one is naturally inclined to jump a little, and starting the flare before opening up the lens accustoms the workmen to the strong light.

If it is necessary to make an open flash in a windy place, I cover my flash pan, after loading, with tissue paper, which prevents the powder from escaping, and does not interfere with the flash when it explodes.

When including life in a home picture, and smoke is particularly objectionable and electric lights possibly impractical, a good flash machine comes in handy, that is, such a machine as the Halldorson, or similar outfits whereby smoke is eliminated and perfect control of the light is had.

In photographing long corridors, which are nearly always dark at the far end and may have a spotted illumination, a succession of small flashes along the line, concealed from the camera itself, by working in doorways and behind columns, is a very nice way to get these. Electric lights may also be used to advantage by placing them behind the columns or in the doorways for short spaces of time during the exposure.

Illustration Number 9 is an interior of a hotel dining-room; the walls were yellow, the carpet buff and blue, and the curtains blue. As the customer wanted the color values preserved, the exposure was made on a panchromatic plate, using daylight coming in at the windows, which was balanced up to avoid halation with two electric lamps with diffusers attached, stationed on the camera side. The exposure was ten minutes, stopped to *f*32.

Number 10 was made almost entirely with electric lamps, which were not moved during the exposure, and which gave the heavy shadows under the chairs. This was made on a panchromatic plate; the time was two minutes, stopped to *f*32.

Number 11 is the interior view of a milk condensory, which shows the effect of combating strong light and at the same time getting good detail all through the picture. The exposure was about one minute, and portrait film was used.

Number 12 is a photograph made for a show case company of their installations, and electric lights were used entirely. The exposure was about three minutes, with a Bausch & Lomb Series IV lens, stopped to *f*32, and a backed Standard Orthonon plate was used.

Illustration Number 13 is an interior made with electric lights with diffuser attached, portrait film being used, and exposure was about five seconds.

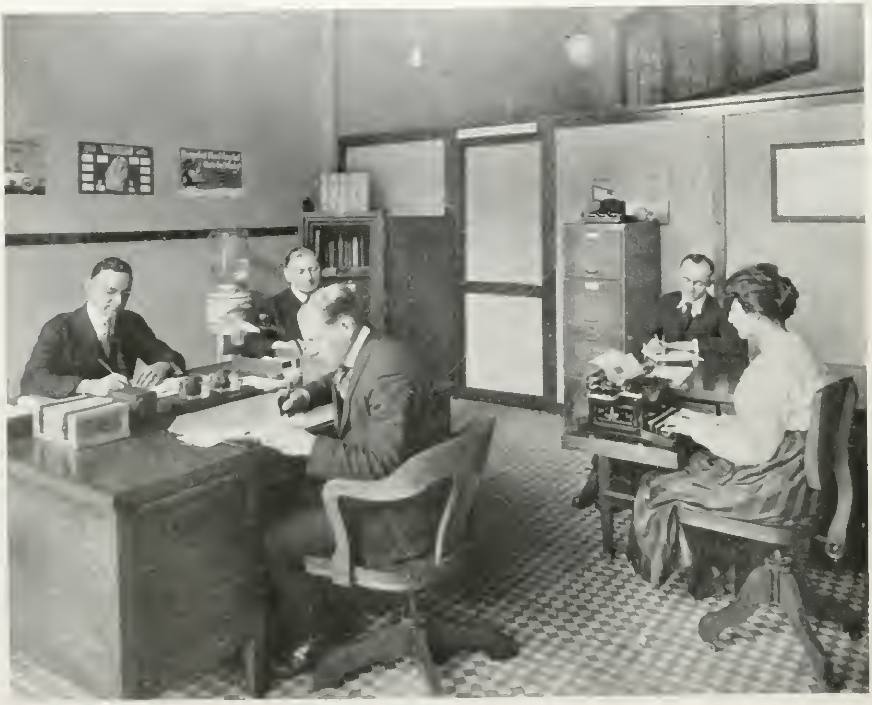


Fig. 13

CHAPTER VI

BANQUETS

BANQUET photography has proven itself very profitable to a number of concerns who have specialized in this line, but for some reason or other, it has always been surrounded by considerable mystery in times gone by as to the methods they followed in turning out finished prints so quickly.

The commercial photographer in a city of average size does not usually have enough call for this class of work to spend very much money on equipment. For this reason, the banquet camera, made by the Folmer & Schwing Company, which is a very good and fine-looking instrument, is not a bad investment, as it may also be used for outside groups and similar work. It has one attachment which is exceedingly handy, and that is, the tilting front. This attachment comes in particularly good where the camera is elevated off the floor, and, in using it, you do not, as it would seem, take in much more foreground. The advantage gained is that you equalize your focal plane from the back of the room to the front, get the heads more nearly the same size, and a sharp negative is obtained of the people and tables with a larger diaphragm and, consequently, less powder.

As this point is better explained by demonstration, if you will try it out yourself, tilting the front of the camera, and keeping the ground-glass perpendicular, you will quickly see the advantage of this tilting front board when you are raised off the ground, that is, when working with a tripod of seven, nine or twelve feet in length, or from a platform.

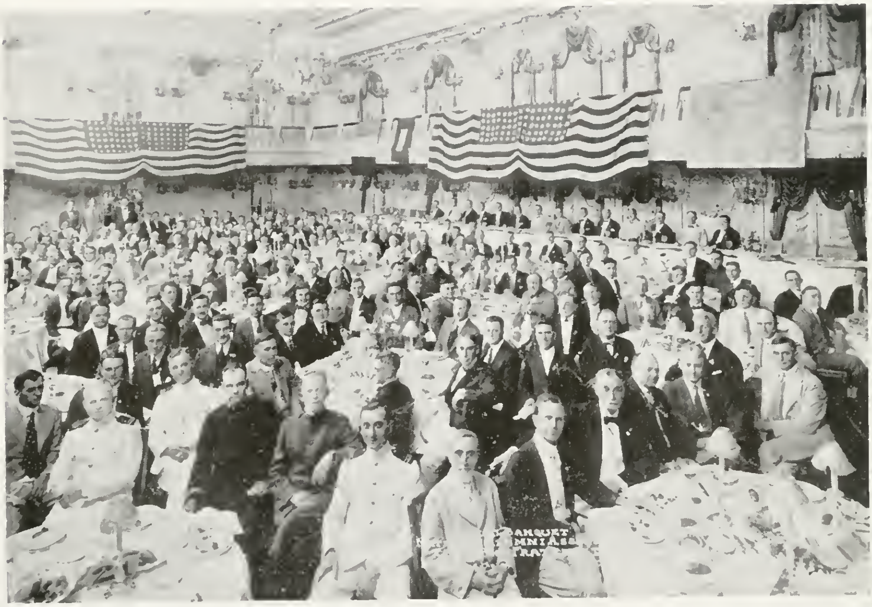
The cameras used by the specialists are nothing more nor less than compo board and are of fixed focus—thereby eliminating the necessity for bellows, with the tilting front the only movable part about it. That only has two movements, one for the seven- and one for the nine-foot tripod.

The lens generally used for banquet work is a Goerz Dagor series III, Number 6, that is, a 12-inch lens, and by working the tilting front and stopping its diaphragm to *f*16, it cuts a 20-inch plate very satisfactorily.

The bags used are either the Prosch, or those which they make themselves, and these latter are sometimes made to fire downward instead of upward as in the Prosch machine. This feature is rather an advantage in photographing in a room with a low ceiling, as it gives light at a higher point, thereby throwing the light downward instead of sidewise. These bags are also made to suspend from the ceiling, or balconies of the room, which does away with the necessity of carrying heavy apparatus needed to hold them in position.

However, it is not a good idea for one to make his own bags unless he is an expert at the work, or his own flashlight powder either, for that matter, and personally I advise against it, for, as is well known, it is a criminal offense to jeopardize the life of anyone, and an accident might put one out of business for all time.

The plates which are popularly used in connection with banquet work are the English Imperials, Eastman portrait film and Graflex plates. After the exposure, the negative is developed, fixed, washed very little, hardened in formaldehyde, immersed in alcohol to dry off superfluous water, and then dried quickly before an electric fan. Prints are then made, wiggled in the hypo, twisted in the water, mounted on a card or slipped in a folder and taken back to the banquet hall. Orders and money are received at one time, receipt given and the finished pictures are then mailed within the next couple of days.



Kaufmann & Fabry Co. Fig. 14

Such a procedure, as is apparent, requires quite an organization, ordinarily, to be a success, and there have been several young fortunes made in the business, but the banquets which have proven the most profitable have been those where notables were present, in which case the pictures have sold like hot cakes. Also, such work is profitable if it is new in the community, but when repeated year after year with practically the same crowd, it becomes an old story, and the reverse of profitable, for unless a large number of prints from each banquet negative are ordered, the immense amount of work entailed, and the keeping up of extensive equipment, eats up whatever profit there might have been.

The amount of powder used and number of bags are, of course, governed by the space to be covered and the color scheme of the room, dark walls requiring more powder. At least two bags should be used to properly balance the light, and from that number up to ten are usually sufficient.

If the bag system is used with cartridges, and more light is wanted on any bag, split the cartridge and add more loose powder. In fact, I always split the cartridge, anyway, for what I think is a better effect.

A very good example of expert modern banquet photography is shown in illustration Number 14. This was made by the Kaufmann & Fabry Company of Chicago, pioneers in the game.

CHAPTER VII

PANORAMAS

IN large offices, banks, stores, factories, warehouses, and the like, especially if there is a promotion or advertising campaign under way, you will be called upon to make pictures including a view wider than your widest angle lens. Of course, a Cirkut camera is out of the question for most interiors, so it means the making of several negatives with a view camera and joining the prints together to make one continuous picture.

Illustration Number 15 is the interior of a bank, considered a very beautiful building, the skylight and balconies of which were quite prominent features. Several photographers had tried to make the picture with a wide-angle lens, but never satisfied the customer. The illustration, as you see it, is a three-plate panorama with absolutely no art work, and is joined together on the white lines, and when finished, the customer had but one complaint—the price. He had been spoiled by low prices.

You will notice that the picture was not joined in straight lines, which is, to my mind, a great advantage over the old method of printing all in one piece, for you cannot get around angles and posts in making a continuous print.

As most jobs of this kind require only one print for reproduction purposes, it is far better to put them up in pieces. The prints are lapped about half an inch, and the edges, both underlapping and overlapping, are carefully sandpapered to a very fine edge, using sandpaper manicure sticks which can be purchased at almost any drug store. After using several other means, I settled on these manicure sticks, as they are much easier to handle, and there is not so much danger of mutilating the print. The prints are then matched together and carefully trimmed.

To prevent buckling of the mount, just before mounting the prints, I paste on the reverse side of the mount a piece of heavy wrapping paper just the size of the combined prints, and then quickly mount the prints themselves. A little careful watching and manipulation in the right direction during the drying process will result in the mount drying perfectly flat.

When dry, a good folder tissue and cover paper, applied similar to the manner used by commercial artists, completes the job, and when put up in this style, will be found easy to deliver at a good price.

I am often asked what I do when the customer wants more prints. They hardly ever do in a job of this kind, but should more be needed, a copy can be made and prints taken from the copy. Personally, I charge them enough for duplicates so that I can mount them the same as the original and still have a profit.

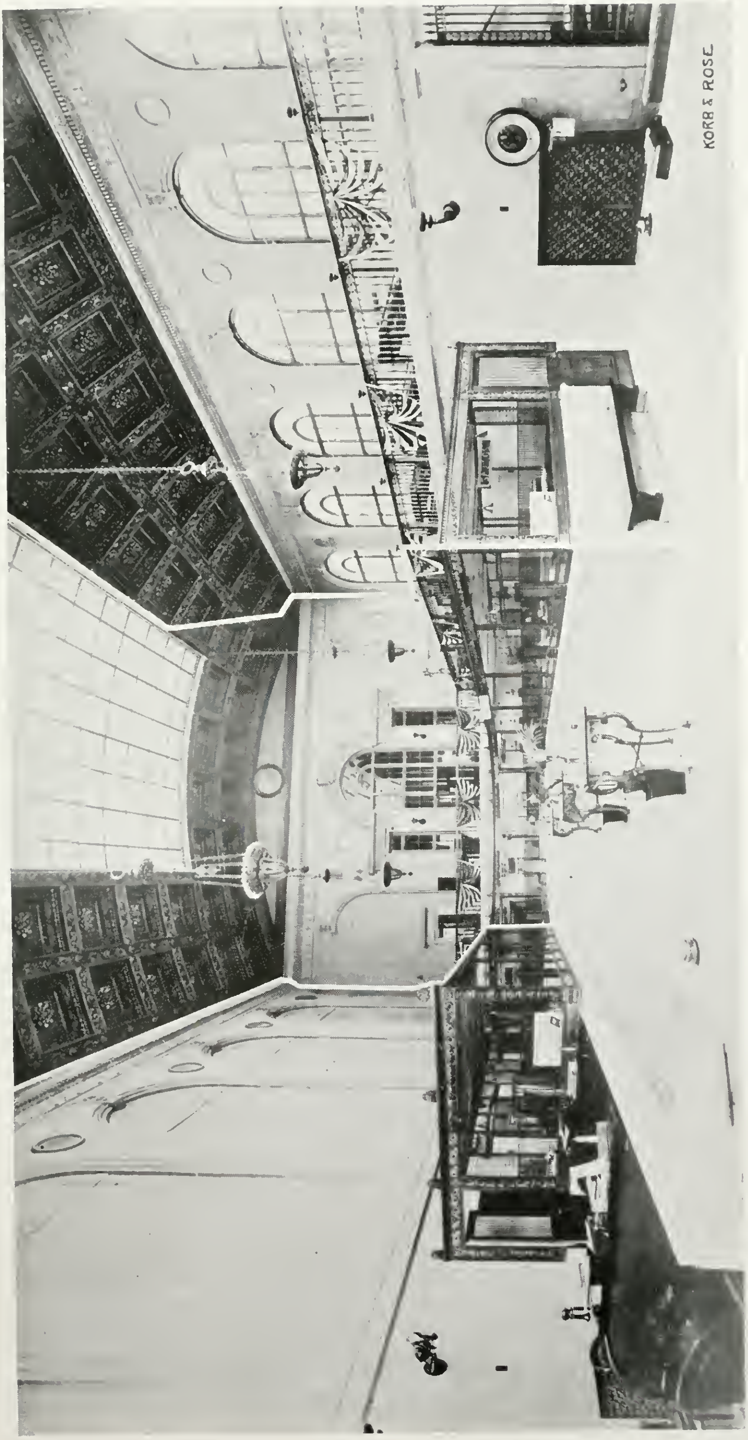
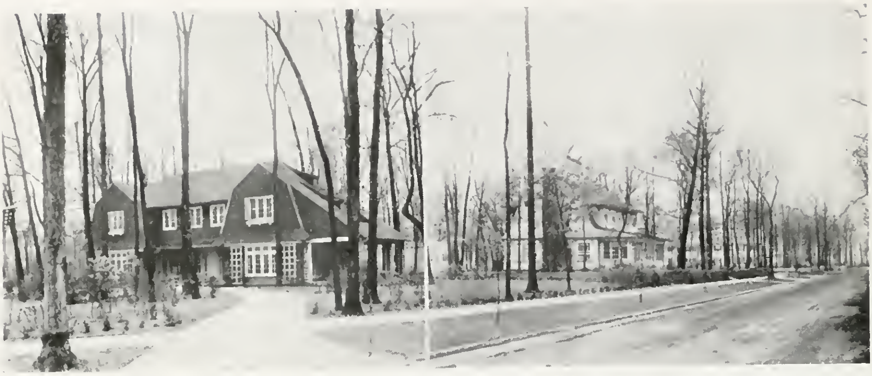


Fig. 15

B. & L. Series IV, (8 x 10) lens; backed Standard Orthonon plate; 20 minutes' exposure to each plate by daylight.



8 x 10 Goerz Dagor lens; exposure, 3 seconds; K-2 filter used on Standard Orthonon plate. Fig. 17

The exposure on the bank picture was about 20 minutes to each plate, stopped *f*45, Bausch & Lomb series IV, 8 x 10, on backed Standard Orthonon plates, using daylight only.

You will notice no halation on the side windows or skylight, although strong light was coming in at all times. This is due to backed plates, proper exposure, and quick development in the dark-room.

Number 16 is a two-plate panorama of the interior of a phonograph and electrical fixture supply store—no art work—with artificial lights only, and is joined on the white line.

The exposure was ten minutes to each plate, stopped *f*32, Bausch & Lomb series IV, and the two Johnson Compact Ventlites used on the job were kept in motion during the entire exposure, which prevented any deep shadows. Backed Standard Orthonon plates were used.

Number 17 is an out-door two-plate panorama and shows the possibilities there. You will notice the lines of the walks and roads are practically straight, and is, all in all, a very satisfactory job.

I might mention that this picture was made on a hazy day in early spring, and from where I was standing, the end of the street was barely discernible. By putting a K-2 filter on my lens, using Standard Orthonon plates, and exposing about 3 seconds to the plate, stopped to *f*64 (Goerz Dagor, Number 6, 8 x 10), the result is that absolutely no haze is apparent.

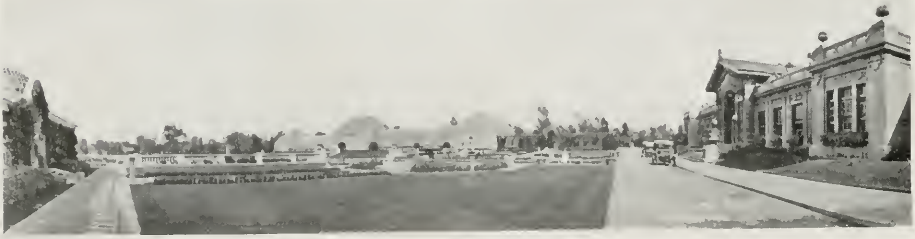


Fig. 19

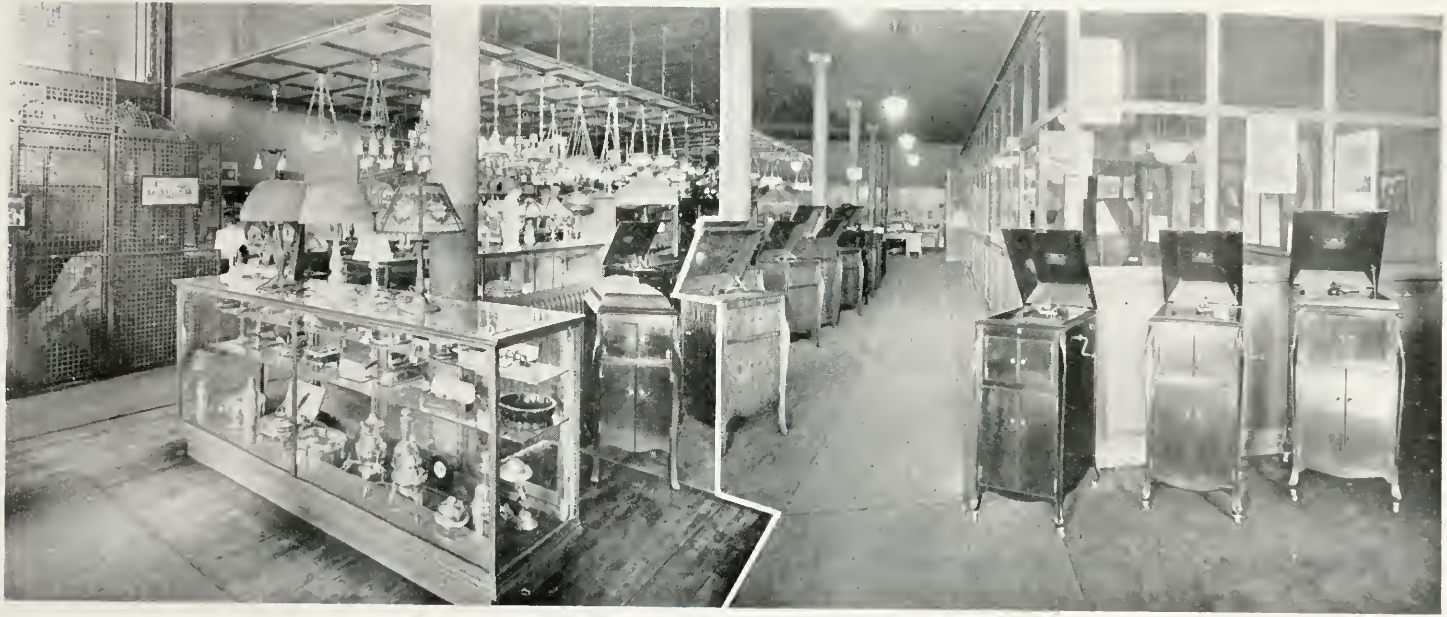


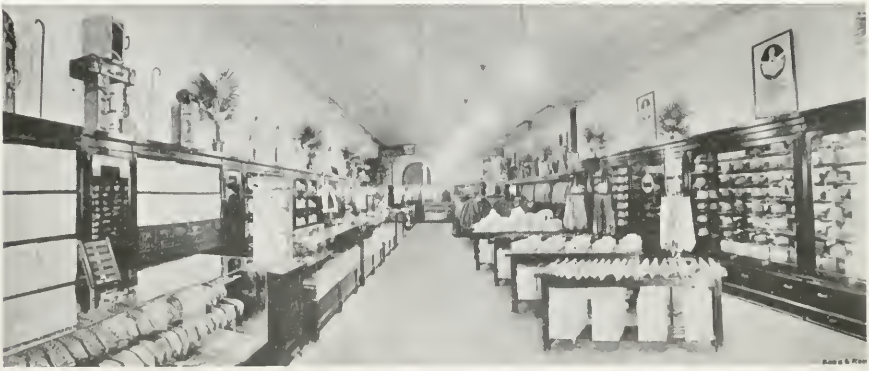
Fig. 16

Exposure, ten minutes to each plate; *f* 32, B. & L. Series IV lens; two Johnson Compact Ventlites used on the job were kept in motion during the entire exposure, which prevented deep shadows. Backed Standard Orthonon plates.

In making panoramas outside with a view camera, it is advisable to stop the lens down considerably, even though it may not seem necessary in covering your plate. Unless this is done, you are liable to have unequal lighting of your plate; that is, your edges will be a trifle darker than the center, which you would probably never notice in a single print, but in a panorama will be noticeable at once. For this reason it is best to use a lens with very good covering power in connection with an out-door panorama made with a view camera.

There is probably no limit to what you can do with a number of plates put together on an interior job. In fact, I knew of an Eastern murder case where the photographer photographed the whole room, ceiling, walls and floor, and put them together for the jury just as the room was.

You can go right along in a straight line and make five or six plates and put prints together. This is a job I am often asked to execute. I have in mind one now I did of a lumber shed. While there was no perspective to the finished picture, it was just what the customer wanted, as it showed the shed much longer and larger than it really was.



L. G. Rose Fig. 18

Illustration Number 18 is the interior of a men's furnishing shop, which was naturally rather cramped looking. By making two negatives, one on one side of the aisle, including all of the aisle, and the other from the opposite side, including all of the aisle, when the two prints were joined together, the desired result of making the store look much larger and roomier was obtained—in other words, a camera lie. Some art work was necessary as, in making the joint straight down through the center, the tile in the floor did not match, and art work was used to bring the tone of the floor up even.

I have also made panoramas outside for landscape architects where, in two panoramas of five plates each, I took in the whole 360 degrees.

A word about placing the camera. You have often been told that the lens had to revolve right over the center of your tripod, which is right, but I often make them with the camera 15 or 20 feet away from the place where the first negative was made; one perhaps made on one side of the room and the other

100 feet away; in fact, there are endless possibilities. A little common sense and some ingenuity are all that is required. The lines on the ground-glass, mentioned in a previous chapter, are a big help, always keeping in mind to have the matching places the same size and with room for an inch lap of view. Another thing is to try to include the whole side of a room, if possible, on one plate and the end of a room on another plate to avoid bends in ceiling beams.

You will note the only bend in the bank panorama is the side rail in the balcony. On the two-plate panorama, there is no perceptible bend.

In making panoramas of offices, including people, it is always advisable to work two cameras at the same time. In this way you can light the entire office at one time and the job is more quickly done and with less confusion. The two cameras can be set on a board on top of the tripod, and the exposure should be equal, with at least an inch lap of view. Of course, you should use lenses of equal focal length.

This work will be found exceedingly interesting and is one of the quickest means of building a reputation. If you are at all clever, you can demand and get almost any price.

With reference to developing, the negatives should all be developed in one tray at one time, or in a tank, to give absolutely equal printing quality, and, of course, the prints have to be made of equal depth to make a proper and unobtrusive match. When properly sandpapered and mounted, the joining places have to be pointed out to the customer, as they are hardly perceptible. Another advantage derived by sandpapering is the fact that when they are set up to make cuts in photo-engraving shops, there is no shadow on the lap side.

Some people butt the prints, but that has always seemed to me a rather clumsy method, as the prints invariably pull apart and show the join.

While this method of making panoramas can be employed in almost any case, a Cirkut camera is a very good investment for many commercial men, or portrait photographers, for that matter, especially in a locality where there are industrial plants, mining properties, real estate promotions, etc., and for large group work, in view of the large print orders generally received, and which would be impractical under the first method. However, each method has its own field, in my opinion. Illustration Number 19 is a very good example of outside Cirkut work.

CHAPTER VIII

MACHINERY

THIS is a line in commercial photography which takes the operator out into the shops and manufacturing plants, and is one for which there is considerable call in manufacturing centers. As pictures of machinery are nearly always used for sales promotion work, and practically every machine has one or more competitors in the field, it is necessary to take them at their best—also for the operator to be able to pick up the good points quickly and with as few questions as possible. For this reason, unless he has a liking for machinery and a knowledge of mechanics, he is handicapped to a certain extent from the start. A knowledge of this sort also comes in very handy in blocking.

Pictures of machinery are usually blocked, that is, with a pure white background, and with this end in view, the shops usually have on hand backgrounds of some kind, either dirty or otherwise, which can be stretched up in back of the particular machine to be photographed.

As to preparation, the modern commercial photographer does not rely so much on preparing machinery for photographing, as it is usually painted either a dark gray or blue-black these days, which photographs very well anyhow, and exposure and development take up many of those deficiencies.

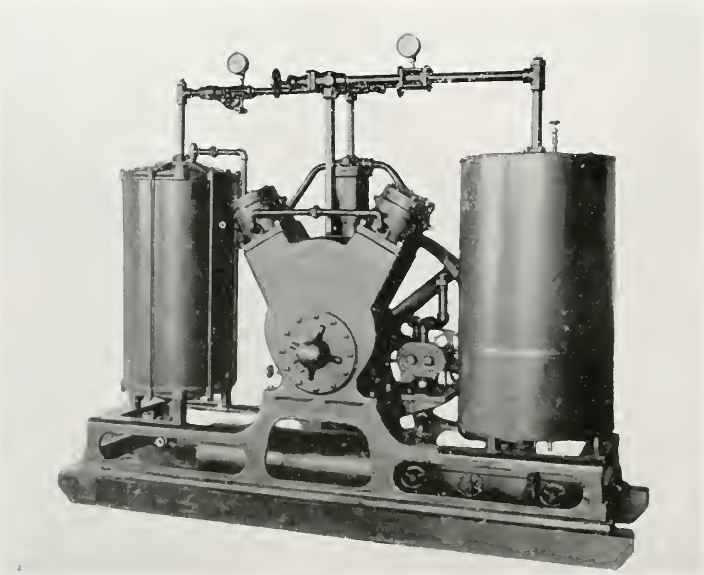


Fig. 22

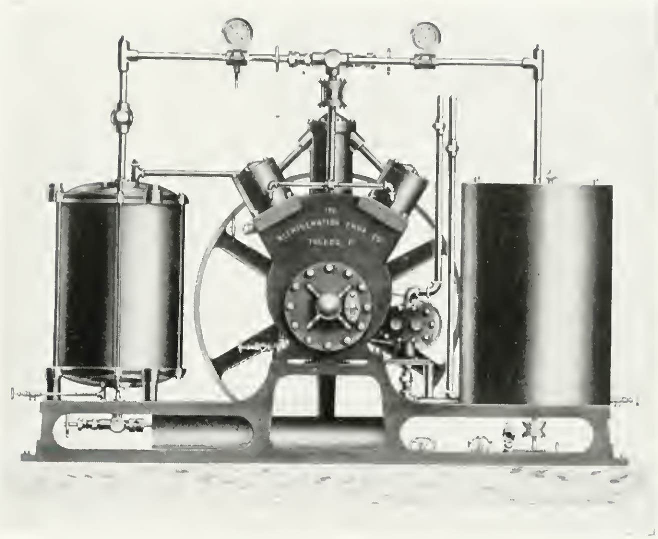


Fig. 20

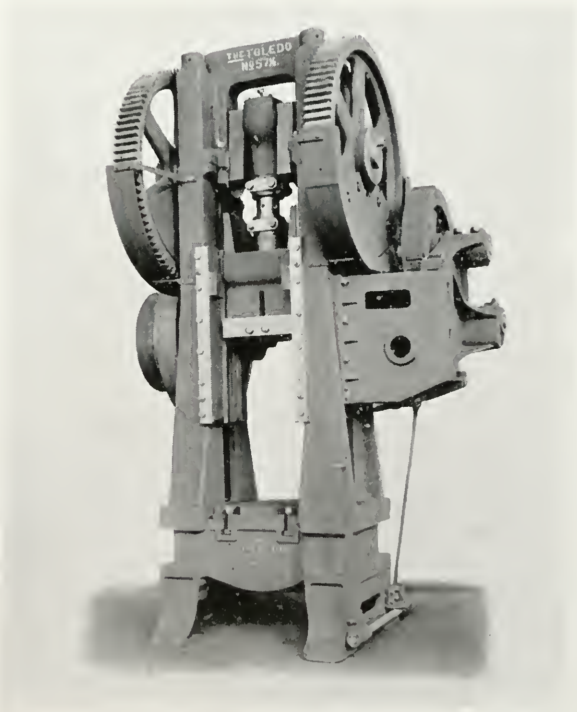


Fig. 21

But, if you do have to prepare anything, a color that photographs very well is what is known as battleship gray. This may be applied so as to come off quickly if gasoline or turpentine substitute are used in mixing. Practically the only time you will have to prepare anything is in connection with some small parts, as the larger companies usually make it a point to have their machine painted before the photographer is called. If they do not have this done, work a little of the payment-for-time stuff, which will undoubtedly have the desired effect of having the job ready when you arrive on the scene of action.

If it is necessary, touch up the name plate, which should be displayed prominently. This can be done with aluminum paint, chalk, or whiting, etc., just so it comes out plainly in the photograph.

In my opinion, the one best way to photograph machinery is with a blow-lamp. I even use it to help out fairly good daylight, as there are nearly always gears, wheels or the like in the shadows, where a short blow will help detail. In using a blow-lamp for this purpose, the lamp should be moved at least six or eight feet during the exposure, that is, from side to side and up and down, so as to get light into all the crevices and shadows. Of course, a little longer on one side than on the other is good to give a slight relief.

In using blow-lamps, they give considerable trouble unless a few precautions are exercised. The blow-lamp should be kept absolutely clean at all times, that is, clean off all of the deposit that forms around the burner, keep the powder passages clean, the alcohol pad in good shape, and by all means have a cover on it to extinguish the flame when the job is finished.

With reference to the powder, it is advisable to use a fine and a medium powder mixed together, as it seems to give a better result than either fine or medium used separately. About an ounce of powdered aluminum, such as used for bronzing, mixed in with the powder, is also somewhat of a help, as it keeps the powder from getting dull.

All powder should be taken from the lamp and the lamp reloaded after each exposure, as the moisture from your breath, blowing into the powder through the tube, has a tendency to cake the powder.

I suppose it is hardly necessary in this day and age to caution that it is not safe to use regular explosive flash powder in a blow-lamp, although it seems to happen occasionally, for it will surely ruin your blow-lamp for all times and will make business for the undertaker. Magnesium *only* should be used.

Occasionally, you will, of course, have to photograph with daylight alone, and at other times with electric light. The same as in connection with the blow-lamp, when using electric light, the light should be moved about to get well into the shadows.

As for the plate, it should always be either on a double-coated plate or a film, as one has a great range in tones, from the deep black to the white nickel.

With reference to the lens to use, this should be of long focus, and if it is at all possible to avoid it, a wide-angle lens should never be used.

The illustrations show various types of machine work, Number 20 being a retouched photograph.

CHAPTER IX

AUTOMOBILES AND TRUCKS

ONE of the foremost industries in this country today, and one in the promotion of which photography is essential, is the manufacture of automobiles and trucks. There is practically no town or city of reasonable size in which there is not a factory or an agency for the sale of one or more makes, or advertising concerns who specialize in automobile publicity, and by whom there is a great demand for photographs to be used in the assembling of their advertisements.

Of course, many of the automobile factories have their own photographers, but there are many times when they find it necessary to call upon outside photographers, and it is just as well to pick up this work in your own town as to let it go to the larger cities.

In this line of work, which includes the photographing of the parts for the parts book as well, there are a few points which it might be well to emphasize.

In photographing the passenger car there are many features, on some of which the designer has spent considerable time, to be brought out particularly strong, such as fenders, body, top, cushions, and radiator hoods, and the popular position which brings these features out best, is shown in illustration No. 23. No particular attention was paid in this instance to the background, as it was eventually blocked out, but you will notice that effort was made to show all four wheels, a separation between the two front lamps and springs, and the top was pulled up taut.

The camera was quite low, not more than two and a half feet off the ground, and a lens of 28-inch focus was used. This matter of the lens being low is really important, as it gives the car a more massive appearance, and at the same time showing all four wheels. Occasionally, a view will be wanted, however, a little more to the front, and it is then more necessary than ever that you use a long focus lens, or you will get a distortion which will show the front wheels much larger than the rear, something particularly to be avoided.

In photographing the interior of a car to make it look as large and roomy as possible, you will, of course, have to use a wide-angle lens, unless two or three views are taken and put together on the order of an interior panorama.

While practically every bit of photography that is done on a passenger car goes into the hands of the commercial artist or retoucher, there are times when a natural or unretouched photograph is desired, or when little retouching is wanted. For this reason, in doing this class of work, it is quite essential that you know a few good locations around your town. By locations, I mean places where, at certain times of the day, the light is right and there is a good back-

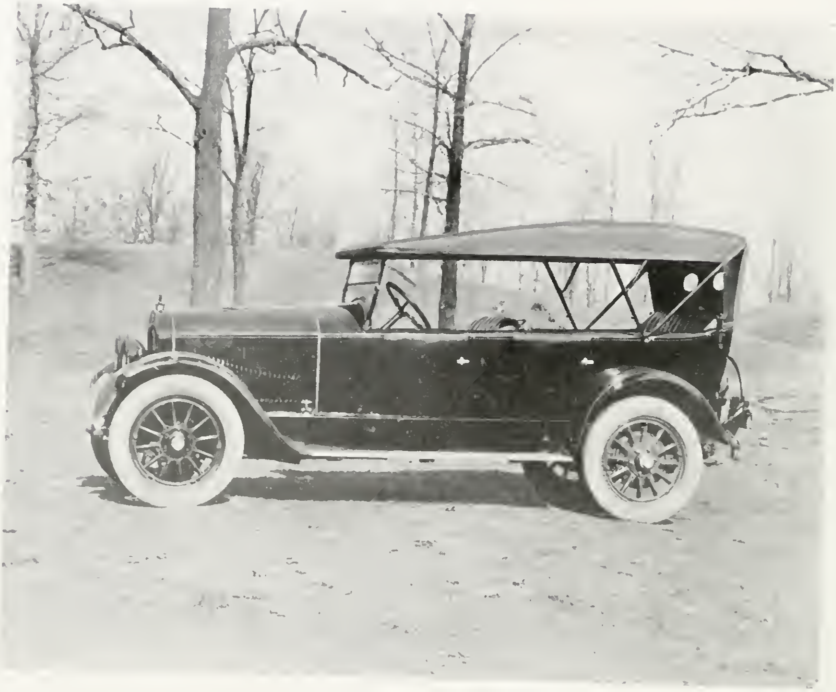


Fig. 23

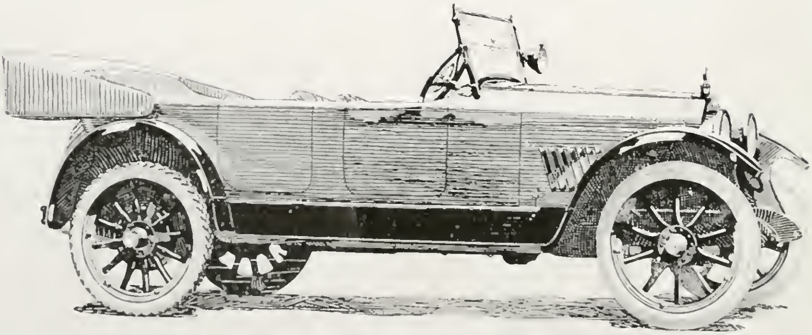


Fig. 24

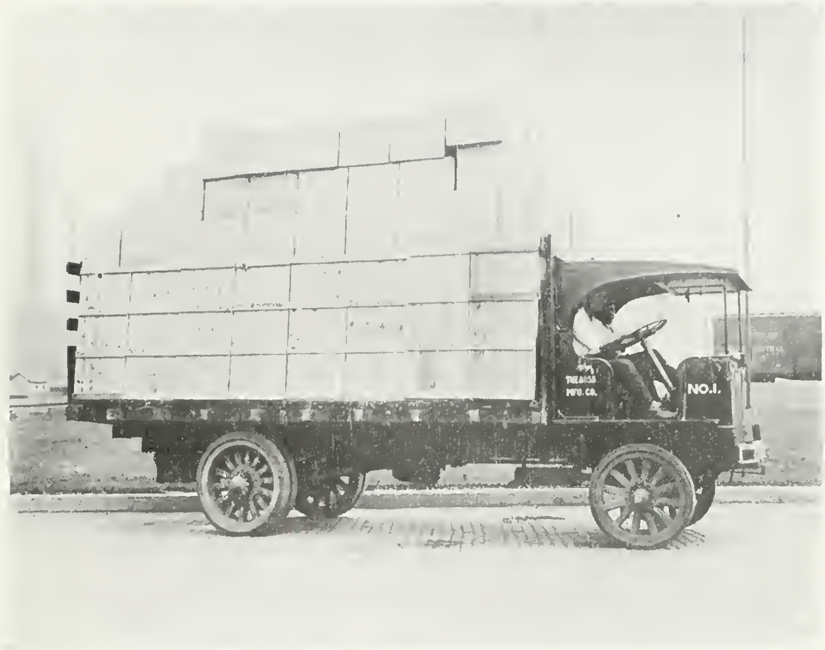


Fig. 25

ground. There is generally a park at hand, where there is an elevated roadway around a ravine or lake, which makes a good spot for photographing automobiles, as you can get low enough to make a real good job. There also has to be considerable care exercised with the highly polished bodies as to what is reflected on them, and that is why I advocate going into the parks, as the reflections are then such as rarely register on the negative, whereas, if photographed in the streets, the structures opposite will undoubtedly show in the print.

Illustration No. 24 shows an effect often used in advertising passenger cars, as it reproduces well in the newspapers. This is obtained by an artist, who goes over the original photograph, using waterproof india ink. It is then generally turned over to the photographer, who bleaches out the original photograph with a solution such as you will find under the chapter on "Printing," leaving the pen and ink drawing only. This kind of a job will come up many times in many different forms, but the general procedure is the same.

With reference to trucks, their sale is promoted principally by the use of photographs, and form an exceedingly important part in the sales talk of truck agents. That is, the various types of bodies on trucks already sold in the vicinity, and which are particularly suited to different industries, are photographed to show prospective customers in selecting the type for their use.

In this work, nearly a straight side view is best, as it shows the body, the main consideration, and, if possible, the truck should always be loaded—the bigger the load, the better it will suit the dealer, for even though they always advocate to their customers the underloading of a truck, they like to see a truck in a photograph loaded way beyond its capacity.

Illustration No. 25 shows a favored view of a truck with an ideal background. It was made on the river front and the load was thrown up into relief against the sky. It was sure some load. Such a background eliminates the necessity for blocking, which some agents otherwise require, and which is a task for which they seldom are willing to pay the photographer adequately. A blocked photograph also does not have the atmosphere such as shown by the illustration, but has the effect of being "staged" especially for the purpose.

It is important that the lettering of the name on the side of the truck stand out well, and it will be found a great help in many instances if a ray filter is used in making the separation of colors, that is, between the lettering and the color of the truck body. For this purpose, a panchromatic plate is necessary when reds are present, although ordinarily a K-2 filter used with a plate or film sensitive to yellow, will be sufficient. For general work, films especially are desirable, as the negative is usually surrendered and sent to the factory, and there is no danger of breakage in mailing.

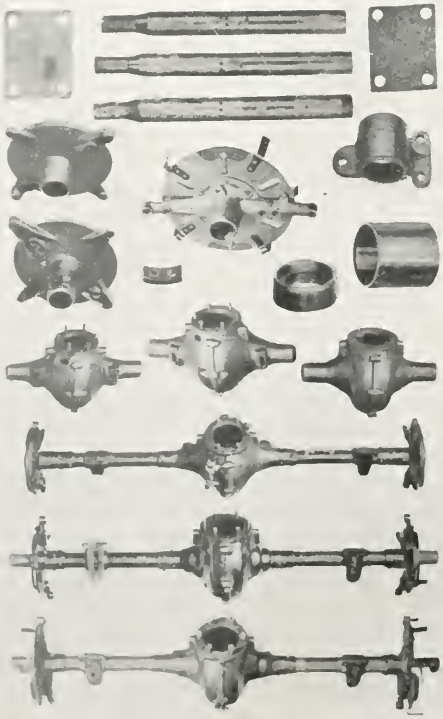


Fig. 26

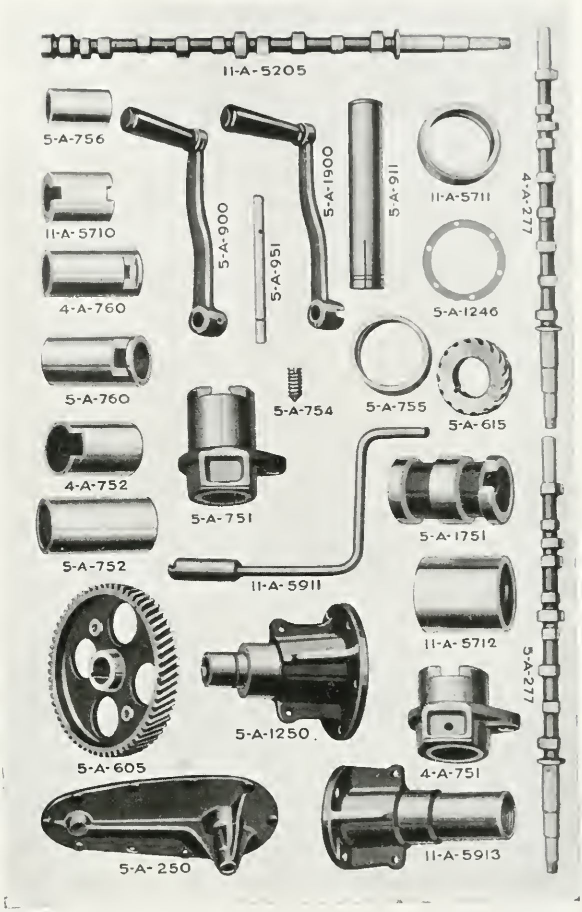


Fig. 27

The lens used should be of long focus.

Then, there is the parts book. This is gotten out to accompany each new model, and it makes a very nice little job when it comes in. The parts range in size from the body all the way down to very fine screws and bolts, and with the exception of fenders, axles, and other comparatively large parts, it is nearly all vertical camera work. The parts of relatively the same size are photographed in groups, that is, on the same negative, a representative of the factory usually doing the grouping and arranging the set-up, so that all the photographer really has to do is to focus the camera and make the exposure. The prints are then cut up and parts rearranged and mounted on cards according to their classification, *i. e.*, electrical parts together, rear axle parts, transmission, etc., after which a second negative is made of the rearrangement, blocked, and new prints made for the photo-engraving retoucher.

While the above procedure is rather expensive, it gives the finest result in the long run, and makes a very satisfactory job, as the screws look like screws and all small parts show up well and not like a mere speck on the page. Illustration No. 26 is an example of an unretouched print from a blocked second negative, and shows the advantage of this method, even though the parts are out of proportion to each other. Illustration No. 27 is a page of parts as finished by the commercial retoucher.

Another method is to take some one section, for instance, the transmission, and photograph it disassembled; that is, only transmission parts on that particular plate, although it has the disadvantage of showing fine parts so small in proportion to the larger ones that it is difficult for the automobile owner to distinguish them apart when ordering repairs. It is far cheaper, however, in view of the elimination of the second negative, and is used by some of the foremost automobile manufacturers of the country.

Where it is necessary to get a top view of the chassis alone, as it is rarely possible to photograph it from a point directly above, a block and tackle may be used to elevate the chassis against the side of a building, thereby permitting the photographing to be done with the camera in a horizontal position.

The particular points to watch in this work, especially should the operator have to arrange the parts for the set-up, is to see that every important and

Automobile at Night Fig. 27A

distinguishing feature of each part is in view, and the best way to obtain this information is to make a careful study of other parts books.

Photography in connection with automobiles is profitable in more ways than one. It is quickly done, it takes one outdoors among hustling and up-to-date people, and will do more to put "pep" and ambition into you than almost any other kind of work, for if there is a real live crowd, it is that made up of men who sell automobiles and trucks for their livelihood.

There is another phase of night work, as shown in illustration Fig 27a, a photograph of an automobile on a rough country road, and made to show the advantages of a certain spotlight system. Here the customer wanted the spotlight without any faking and also a little detail in the automobile. This is a job that comes up often in different forms.

The exposure was timed out for fifteen minutes with the spotlight and headlights as the only means of illumination, and was then augmented by a small flash from a hand flash lamp to give the detail in the automobile.

A peculiar thing about night work of this character, including street scenes, interiors of shops, etc., i. e., where shadows predominate, is that the lens does not necessarily have to be stopped down—it can be worked wide open and everything is apparently sharp. Sounds ridiculous, but it is true. I have heard many explanations of this, but, as they differ so widely, will not attempt to lay down any reason.

CHAPTER X

STORE WINDOWS

THE photographing of store windows, and all forms of that kind of work are, to my way of thinking, disagreeable, for it is a rare instance indeed, that, for the amount of time and labor involved, a proper compensation can be obtained. At times though, the work has to be done and many operators seem to have considerable trouble in getting good photographs of windows. The trouble is that store windows are generally located on busy streets, and if made at night one has the street lamps to contend with, which give no end of trouble, the wind blows down your camera, you get cold clear through to the bone in winter and swelter in the summer sun, you have to answer innumerable questions from passers-by, and all in all, it is anything but congenial employment. Then, if you charge what it is worth, a howl goes up. For this reason, many of the better class of commercial studios steer entirely clear of this line of work.

However, there are several ways to photograph windows successfully.

You can photograph them in the daytime with the sun directly on the window, which will kill, practically, any reflection, excepting, of course, in the case of a north window, or one which the sun does not reach, when it will be necessary for you to have a black screen in back of your camera to throw a black reflection. This screen may be made of dark canvas, and to be portable, may be attached to sections of gas pipe, which are quickly and easily put together. This may also be used at night to eliminate the reflections of lights opposite the window, and which may not be turned out during the exposure.

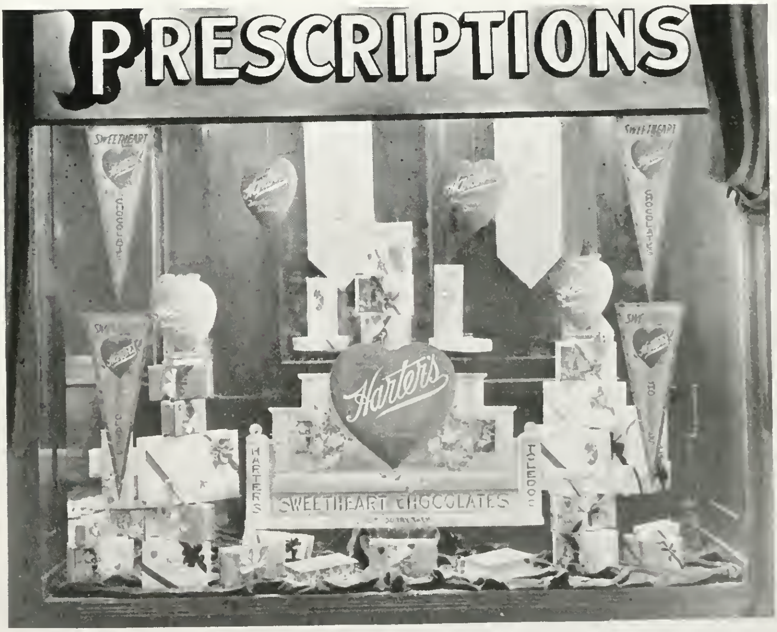
Some operators who work alone and cannot carry screens and other paraphernalia have a switch key that will turn out the lights of windows along the street, such lights usually being controlled by an outside switch box, but they cannot turn out the street lights, so it really comes down to one way of photographing some windows with any degree of success, which is to photograph them at night and give time for the interior of the window, and then use a blow lamp to finish up for the outside, handling it the same as you would a copy under glass, that is, keep the light off your window. This means you will have to work your blow-lamp on each side of your window in such a position that the light will not reflect on the glass itself.

This method really gives a very pleasing effect. There is only one drawback to it, and that is, the window has to be absolutely clean, as otherwise every little streak and dust mark shows up very plainly in the negative.

Another phase of this line of work is the making of night pictures out-ofdoors of buildings, machinery in operation, electric signs, etc. The customer will tell you that he wants the picture as it looks at night, but if you gave him such a picture made in the ordinary way, he would be very much disappointed. A very satisfactory way of doing such a job is to set the camera up in the early evening just before it gets dark, stop the lens down and make a short exposure. After the lights are on, the balance of the exposure may be given to show the illumination. This will give a fine night effect, but it is another of those waiting propositions which must be charged for, if one wants to make a profit on his services.

In connection with window work there is another kind of work that is developing fairly rapidly, especially in jobbing centers. Such an instance is where the manufacturer or jobber, in aiding his customers to make attractive window displays, has a sample window set-up worked out for them to go by. It has been found by experience that the best results can be obtained by posing this dummy window in the studio, thus eliminating reflections and other difficulties of ordinary window photography and obtaining a good lighting of the subject. This photograph is then sent out by the jobber together with the necessary paraphernalia—cut-outs and goods—and is the guide for the retailer in making up his window.

As the print orders are usually of enormous size, this is becoming quite a field in photography, as several commercial photographers are specializing on it now, and it offers exceptional opportunities to those who like window trimming work.



Blow Lamp Photograph of Window Fig. 27B

CHAPTER XI

THE STUDIO

IT has often been stated that the commercial photographer packs his kit and goes anywhere under the sun and photographs anything any time, which is really quite true. But, commercial photography's real purpose and the form in which it reaches its highest development, is the photographing of goods to sell those goods. This is the big argument of the commercial man in selling his services.

To carry on this line successfully and reach the maximum of business efficiency, it is very necessary to have a studio, and that studio well equipped. Of course, there are certain specialists who have no need for a real studio in their particular line, only workrooms, but even the specialist finds himself up against it at times, as right now I have in mind several photographers who have specialized in the photographing of automobiles only, and in the recent reduction in the manufacture of passenger cars, they found themselves without any work, whereas, if they had had studios, other work would have taken its place. Again, there is another class of photographers who have no studios or workrooms, and who are known among the "regular fellows" as "bathroom" photographers. They are one of the principal arguments for the use of a studio, as their quality of work is rarely, if ever, as good as that of the man who has a place of business and takes his place as a business man, and they never reach the peak of efficiency, because they are handicapped, especially with regard to lighting conditions, as a rule.

There is another side of this subject, and that is the question of price. I have always found from my own observation and experience in various parts of the country, that the man with the established place has more of a leverage for good prices, which, after all, is what everyone is after.

As the enlarging, paper and plate rooms will be discussed in other chapters, I will take up herein the operating room only, and that, when used for general work.

The operating room should be very large and roomy, for one will find frequent use for a lens of extreme long focus, and then again, especially on large jobs, there is need of storage space for articles before and after photographing. Also, there should be plenty of large tables, as many customers prefer to make their own layouts.

Another necessity, if one is not on the ground floor, is an elevator, easy of access, and opening conveniently into the operating room. This is more important than one would ordinarily think, as many customers will not send their work to a photographer, no matter how good he may be, if they have trouble getting it there.

While good work can be, and is being done in various parts of the country with artificial light, I am a strong advocate for a skylight, for there is always the added and not inconsiderable expense of upkeep for the artificial light, and not only that, daylight negatives in the long run are of a much better quality. This skylight is a matter of some consideration. It should be as big as possible, or, I might say, as big as the landlord will stand for, and preferably with plenty of top and side (clear glass) light. To my mind, the ideal skylight is per the diagram here shown, No. 28. With such an arrangement, it is not important whether it is a north, south, east or west exposure, the light is always good, although a north exposure gives the least trouble. In portrait work, you have always been told that a ground-glass, a prism glass, or some ribbed glass is really the best. Possibly it *is* for portraiture, but for commercial work, a clear glass light will give the nicest and snappiest results, and it is quite essential to have top light if one works a vertical camera, as a side light alone will give considerable trouble in obtaining an even illumination.

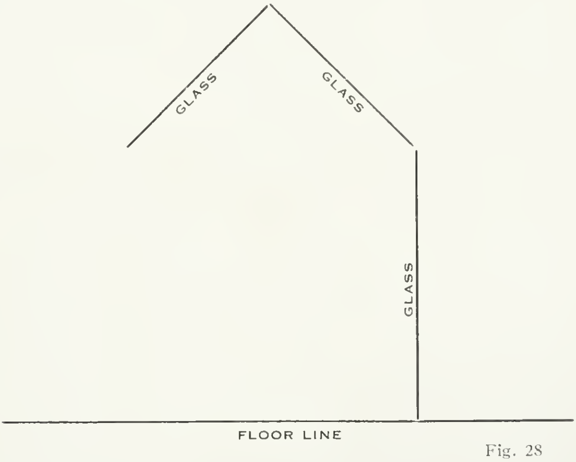


Fig. 28

Curtains for the skylight depend upon conditions, but for most places you will require a set of the opaque on roller variety, then a set of white diffusing curtains, and on the under side a set of black (muslin, for instance) curtains, these latter two sets on wire. The purpose of this inner, dark set of curtains is to cut reflections on shiny surfaces. Many times you will have reflections which can be killed instantly without cutting down the volume of light by the movement of the proper curtain, especially when photographing a set-up on a vertical camera. As a supplement to these curtains, head screens such as used by the portrait operator will be found extremely handy in cutting down or diffusing light locally.

No matter what your equipment is, however, you will need artificial lights of some kind or other, of the electric variety, preferably because, nowadays,

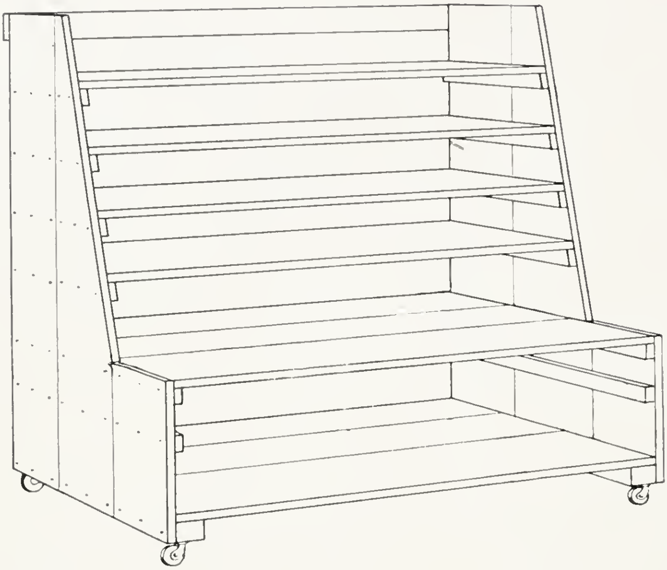


Fig. 29

speed is essential, and jobs often come in one day, with finished prints to be delivered the next, especially in catalogue and magazine advertising work, and the photographic work will have to be done at night.

Some studios use the old-fashioned arc lights, some the Aristo, the Northern, Majestic, or Panchroma. These are all good, and practically the only difference I can see is that some of them consume more current than others, and the initial cost.

Then, there is the Cooper-Hewitt, often used to augment even daylight, when they are attached to the crossbars of the skylight so that, as daylight wanes, the tubes can be turned on. Some large plants, especially those doing an immense volume of photo-engraving work, and running night and day, use these Cooper-Hewitt tubes exclusively for all photographic work, so as to obtain an even run of negatives. However, these tubes have one disadvantage which can be overcome, and that is, in using color filters, one has to work somewhat differently in view of the color of the light.

And, last but not least, we have the Mazda or Nitrogen filled bulbs, which can be used in so many different ways that it is almost impossible to enumerate them all.

They have several advantages over the arc lamps, in that they can be used in all sorts of positions; they consume less current, and are light and easy to move. They can be made in the form of an artificial skylight, or they can be used separately on stands. The light of the clear bulb is a color correction of about the K-1 type by itself, which is somewhat of an advantage on certain work.

I have already taken up the matter of cameras and lenses in another chapter, and will now only describe the apparatus necessary in photographing set-ups. Illustration No. 29 is a rough pen sketch of a stand carrying a series of shelves, painted flat black to eliminate reflections on the objects being photographed, and which come in extremely handy. These shelves are all removable, and the lower section of the stand is a convenient storage place for blocks, tools, clay, putty containers, etc. This rack may be used for photographing practically all merchandise stuff not better done on a vertical camera, and illustration No. 30 is a good example of such a set-up.

In using this rack, many times there will be small articles set close together, one tier above the other, when the upper shelf will cast a shadow on the goods below. In such a case, the wooden shelves may be replaced by some of plate glass very satisfactorily, and an even lighting obtained.

While considerable work done in the studio is eventually blocked out, nevertheless you will need a good background of some kind or other, and most commercial places have a background carrier with a black ground on one side and a white ground on the other. Of course, the best dark ground is of black felt, although the ordinary painted ground, even though it does not have the depth that felt possesses, does very well. For a white ground, it should be a

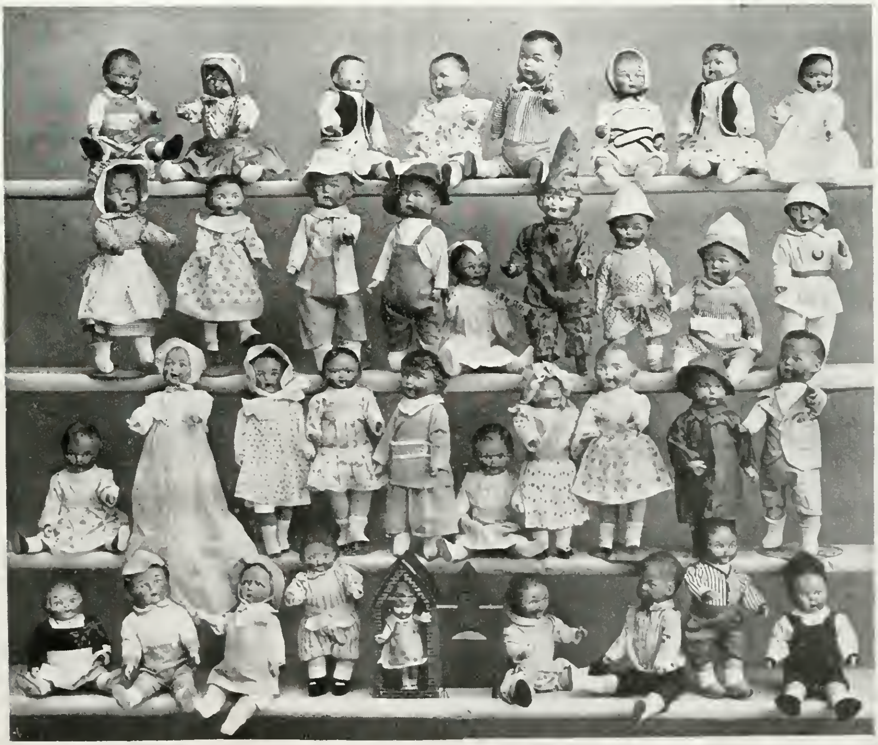


Fig. 30

white that photographs white. The light-blue-white, and red-black grounds, which the portrait man uses, and which, with color-blind plates, photograph white and black, respectively, show up very unsatisfactorily, as most of the plates and films used by the commercial operators are color sensitive.

An extremely practical carrier for these grounds, instead of being a skeleton frame, will be found to be solid, as thus it can be utilized for many merchandise set-ups which have to be tacked onto a background.

A timely little suggestion with reference to backgrounds, and a wonderful saving, especially when a background is needed for oily pieces of machinery, castings, and anything which might soil the cloth background, is to obtain from your newspaper office what are known as paper butts. These are nothing more nor less than left-over ends of newsprint paper rolls, which are too short to start in the press, and can usually be bought at what the newspaper people paid per pound. The paper is wide, running up to 54 inches and more, and forms a continuous background. As soon as soiled, it can be thrown away, and it photographs a very good white.

With reference to backgrounds for a vertical, a good stunt is to have the backgrounds, say two of them, one black and the other a neutral tint, on shade rollers, and rolling from opposite sides. The good point of this method is that when in use, the backgrounds are held taut by the roller, and when not needed are rolled up out of the way. The white ground is furnished by the lights coming up through the glass as taken up in the succeeding chapter.

In making set-ups where the articles have to be pinned to the background, while there are many varieties of pins, the variety known as "bankers' pins" will be found the most suitable. These are sold by the pound, and are strong enough to stand hammering into wood without bending. After the article is in place, the pins can be cut off close in with what are known as diagonal pin cutters, a tool you can buy at any hardware store for about a dollar and a quarter, and which is worth its weight in gold to any commercial operator. In this way, the means of holding the article in position does not show in the negative, and eliminates a lot of unnecessary work.

In making set-ups, especially on a vertical camera, you will have need for another very handy article, and that is modeling clay or a substitute. One brand of substitute, which is popularly used, is known as "Paramount Plasteline." It keeps well, is reasonable in cost, and seems to last almost indefinitely. There are several colors of this brand of clay, but the light gray-green seems to be the best for commercial work, as it does not shed its color as do the red and yellow varieties. This clay will hold almost any fair-sized article in practically any desired position, and has the advantage, if it protrudes over the side of the article being photographed, that it can be sliced off with a knife without altering or endangering the position of such article.

When making set-ups on felt, velvet or glass, to prevent the clay from leaving any mark, and also to make it easily movable, as it sets in its position quickly, a small piece of glass at the lower end of the clay will be found very convenient.

Putty is another item which is a real need around a studio, and which is used for dulling down bright surfaces. In using putty for this purpose, after applying, a wide camel's-hair brush should preferably be used in smoothing down uneven places, although a tuft of cotton serves very well. Just a word as to keeping this putty. Complaint has often been heard that putty gets hard and must be renewed frequently. If it is kept in an air-tight glass jar, free from contact with any paper or cloth, or anything that will absorb the oil, it will keep in good condition for months.

Without pin cutters, clay and putty, I would feel as much lost as I would without a lens.

As for the kind of dope to use on different articles, the modern commercial photographer does not rely so much on these as many people suppose. (Of course, there are a few exceptions, such as in photographing glassware, nickel parts on stoves, and silverware). He gets his results by the proper selection of plates, proper lighting and time, developing, and a well-balanced print.

Some operators go to great trouble to have articles painted colors different from what they ordinarily are, to make them photograph, as they call it, "right." This has always seemed ridiculous to me, as the goods never look in the reproduction like the original; there is confusion and argument in the factory, and all in all, it is not the best way to do. All work should be done with the least trouble to the customer.

Of course, there are certain occasions when some dope helps, especially in toning down obtrusive high-lights and lightening up dark corners. An excellent mixture for this purpose is what is known as retouch white and retouch black, obtainable at artists' supply stores, and used principally by commercial retouchers. When mixed in the right proportions for the particular job and diluted with water, they are easily applied with an air brush, and any effect desired may be obtained easily and quickly.

CHAPTER XII

GENERAL MERCHANDISE

A FEW years ago a traveling man, starting out on the road, required a dray, numerous trunks and any number of people to get him off, and it required trunks and drays to keep him going, as he carried samples in some form of practically everything he sold. If he carried any sort of a perishable line, such as candy, cigars, baked goods, etc., they had to be continually replenished from stock at headquarters, which made a great many broken odd lots, and a large force of workers was needed to keep the samples in tip-top shape at all times.

Nowadays, the same fellow, with the same line, will go in to see a customer, carrying only a portfolio, and in that portfolio he will have photographs of his entire line, shown to much better advantage than ever before—besides, he has not the heavy trunks, nor the bother of carting them around, nor the necessity of renting a hotel room to show his samples.

Of course, there are still some lines where they persist in carrying samples, but present conditions are rapidly hustling those few into the use of photographs.

You often hear the argument, "I can't sell my goods from photographs." An answer to that argument is the mail-order houses of Chicago, who do millions of dollars' worth of business annually—all from pictures.

Photographs for cuts for catalogues and for salesmen's books represent so many varied lines that all I can do in this instance is to pick out a few of them and explain the methods of procedure, for they run all the way from candy to medical specimens.

If you want a real experience, just work for one of the large commercial studios, and in six months' time I will guarantee you will have photographed practically everything under the sun and lots of stuff that isn't under the sun. To my mind, medical specimens are about the worst I have encountered—at least, they made the most impression on me.

The layout is one of the first things to be considered in merchandise work. The standard merchandise print size, that is, for salesmen's samples, is generally 10 x 12, although some of them do use 8 x 10, this latter size usually made for the engraving houses.

In grouping articles for photographing on an 8 x 10, that is, for large layouts to be reduced to 8 x 10, the proportions should be 16 x 20, 24 x 30, etc., whereas, those for 10 x 12 are 20 x 24, 30 x 36, 40 x 48, and so on. You can then group your articles within these lines, and you will know that they will come in proportion to your plate and the plate be well filled, as most customers like to see them.

In lining up small articles for photographing, such as jewelry, where the rows must be regular, the general procedure is to use, for instance, a 10 x 12 piece of preferably flashed opal glass, and a piece of paper same size. Rule lines on the paper both horizontally and vertically, in squares similar to the way the ground-glass is ruled, and illustrated in a previous chapter. By placing this paper under the glass, you can line up the articles absolutely straight, quickly and easily. The paper can then be removed and the glass transferred to the vertical camera and in the photograph they will look right.

An excellent medium for holding articles such as rings and other fine parts in an upright position for photographing, is what is known as jewelers' white wax, which photographs pure white and, as it is very tenacious, it takes a minute quantity to do the work.

A good method whereby the size of the articles on a page of merchandise may be determined by prospective customers, and especially where many are crowded onto one page, is to include in the picture a tape measure, as illustrated in illustration No. 31. This tape measure should be rigid, that is, mounted on something which will hold it taut at all times, so that it can be

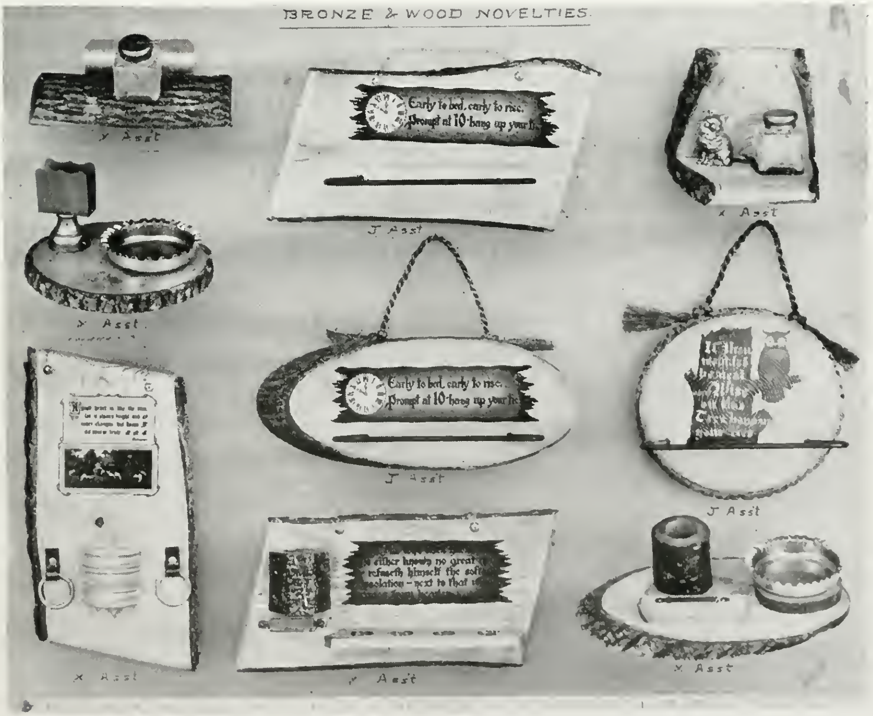

BRONZE & WOOD NOVELTIES.
Y Asst
Early to bed, early to rise. Prompt at 10 hang up your h
J Asst
X Asst
Y Asst.
Early to bed, early to rise. Prompt at 10 hang up your ha
J Asst
J Asst
X Asst
Y Asst
X Asst

Fig. 31

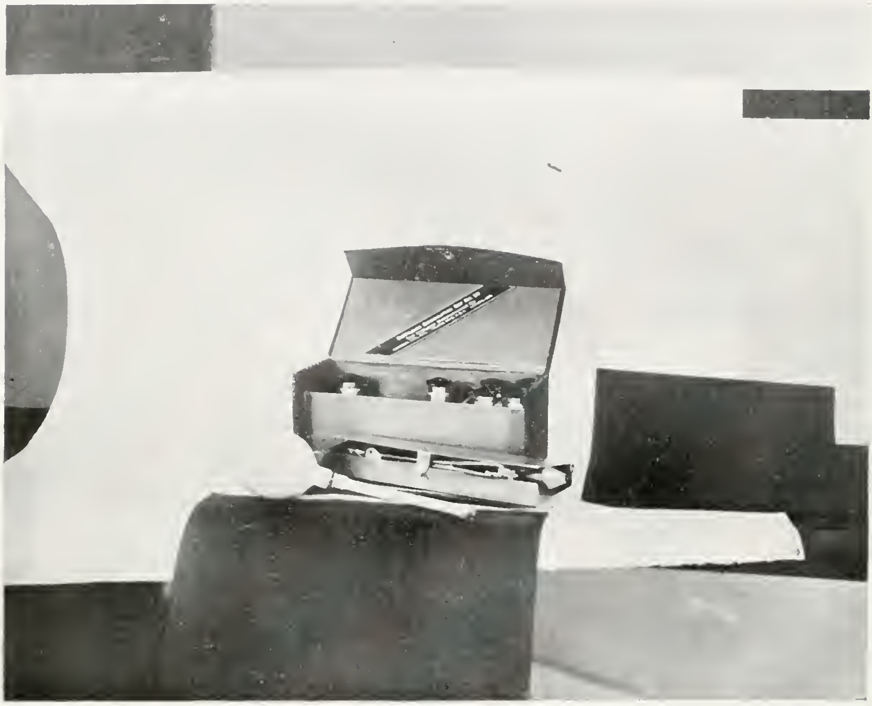


Fig. 32

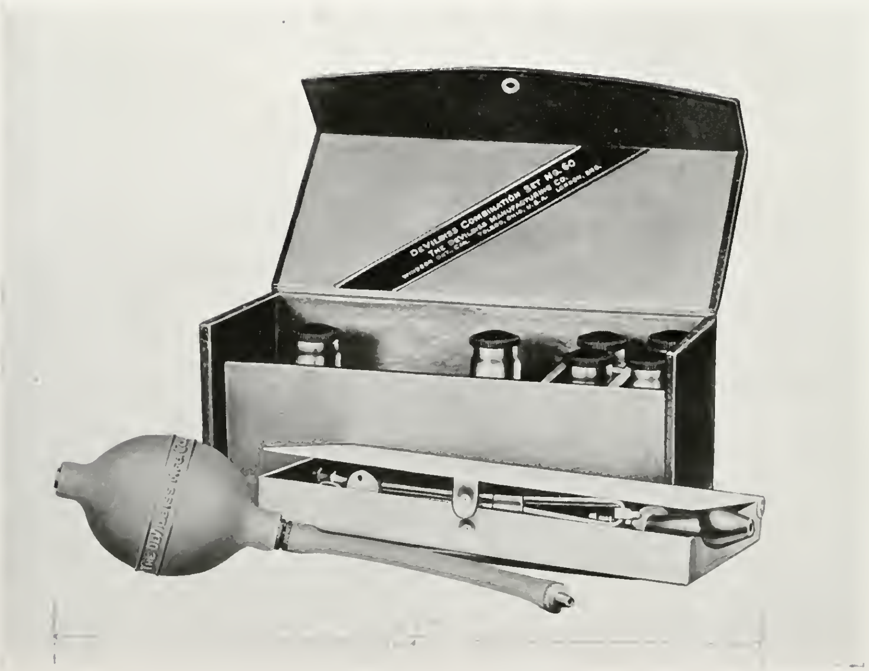

DeVILBISS COMBINATION SET NO. 60
THE DeVILBISS MANUFACTURING CO.
WINDSOR, ONT., CAN. TOLEDO, OHIO, U.S.A. LONDON, ENG.
THE DeVILBISS MFG. CO.

Fig. 33

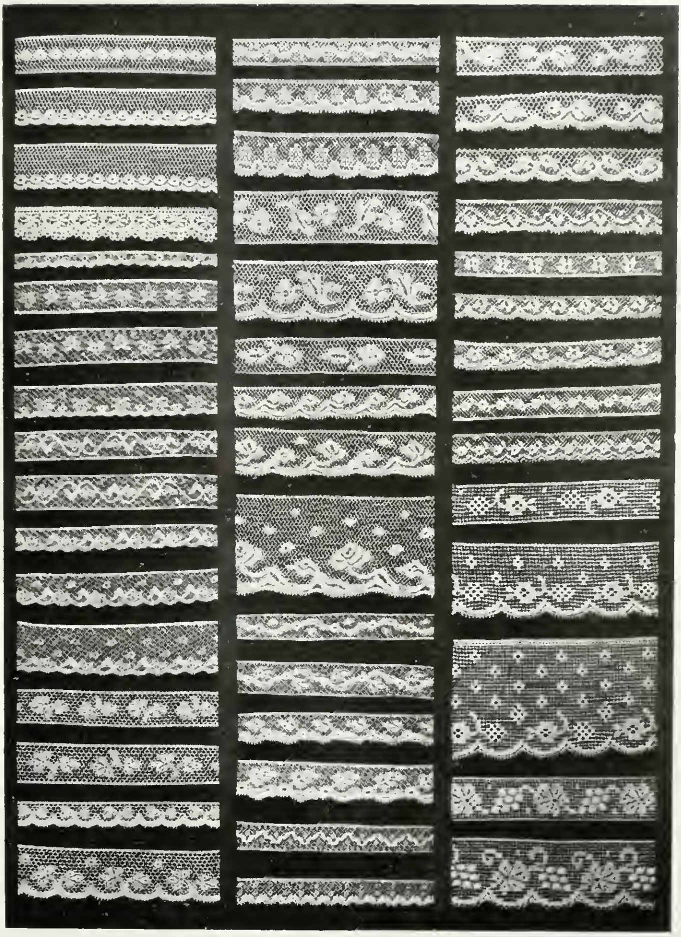


Fig. 34

placed in the same focal plane as the articles being photographed, and should be of a color (preferably yellow) that will show up well against any background.

There are many articles, such as watches, clocks, certain jars of fruit, etc., which have a shiny surface at the edge, and which, if photographed same size, even though a lens of long focus is used, look much larger than they really are. This has bothered commercial photographers for years, and I understand it finally took an outsider, an advertising man, to discover the cause of the difficulty. It is said to be an optical illusion, the shiny surface near the edge giving the effect of a much larger article. The way that has been evolved to get around this is to photograph an article of that kind, say four-fifths or five-sixths size, that is, make an article that is ten inches high, eight or nine inches, and the article in the finished photograph will have the appearance of being the same size.

Another perplexing problem which arises in photographing commercial set-ups is when a customer brings in something, for instance, a layout such as shown in illustration No. 32, which is about nine inches over all, and thinks, just because it is not as large as the plate, that it can be photographed the same size direct on an 8 x 10. As is apparent, the set-up is high and deep, and there is no lens on earth that will do a job like that and get it sharp, with correct perspective, although many a poor fellow has tried it. The way such jobs are done is to make a 4 x 5 or 5 x 7 image and then enlarge up, and if the print order is big, make a copy and print from the copy. With your small image, you get the increased depth, proper perspective, and the job is "right," being sharp at the points both nearest to and farthest from the camera. In the illustration, you will notice the black papers laid around underneath the set-up. These papers, which come wrapped around film, and which we used to have to buy, kill all white reflections and yet do not interfere in the blocking. Illustration No. 33 shows the completed job, some retouching having been done on the original photograph.

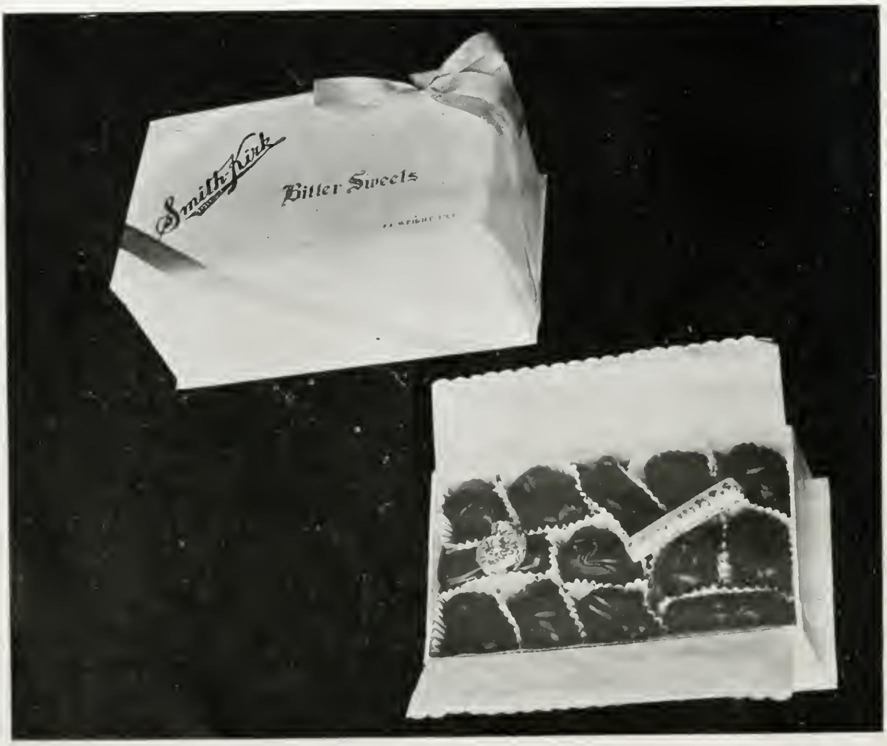


Fig. 35

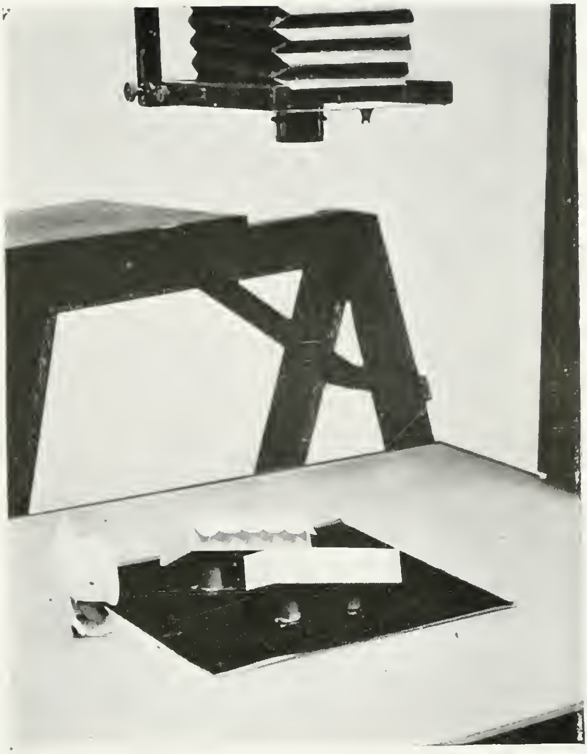


Fig. 36

Laces and embroideries are another line which give considerable trouble. Illustration No. 34 is a set-up of laces. The proposition is that the photograph has to show every little thread and design, as yards and yards are sold from these photographs. Laces and embroideries are practically invariably photographed on a pure black ground, this particular lot being made on black velvet. A process film was used with pyro developer and the exposure was made by artificial side light. This side light gives more relief to the threads of lace and to the raised design on embroideries.

It is in set-ups of this kind that the pins and pin cutter mentioned in the previous chapter come in especially handy.

A big help in making many set-ups is the vertical camera mentioned heretofore, and the results of some of this work are mystifying to many people, as the articles apparently have no means of support. Such a set-up is shown in Illustration No. 35, while Illustration No. 36 reveals the manner in which it is obtained, by the use of clay on glass supporting the boxes. You will notice that the customer can see how deep the box is, its length and width, and how it is packed. It would be extremely difficult to get this set-up by any other method. A cup and saucer has been included in this illustration, to show the manner of setting up these articles on a vertical camera.

Illustration No. 37 is a set-up of automobile parts on a white background. To do away with blocking, and at the same time get what you might call more of a relief effect and better light all around, as it does away with underneath shadows, electric lights are placed under the ground-glass at points denoted by crosses in Illustration No. 38, which is a photograph of the camera with a set-up in place. The series of electric lights is placed around the lower edge of the compartment, and reflectors shade the bulbs in such a way that the light is thrown on the white floor of the lower compartment, and which reflects up through the ground-glass. The lights are turned on for a short time, about 30 seconds in this particular case, when they are then switched off and the exposure carried on as usual. The light passing up through the ground-glass gives more roundness to the articles and an absolutely white background, providing you do not give too much exposure with the lights on; overexposure, of course, flattening it down to a gray tone. This method is used in the larger studios a great deal, as it does away with a lot of work and blocking, and at the same time giving a much nicer effect. If you can afford it, an opal glass instead of the ground-glass is exceedingly fine.

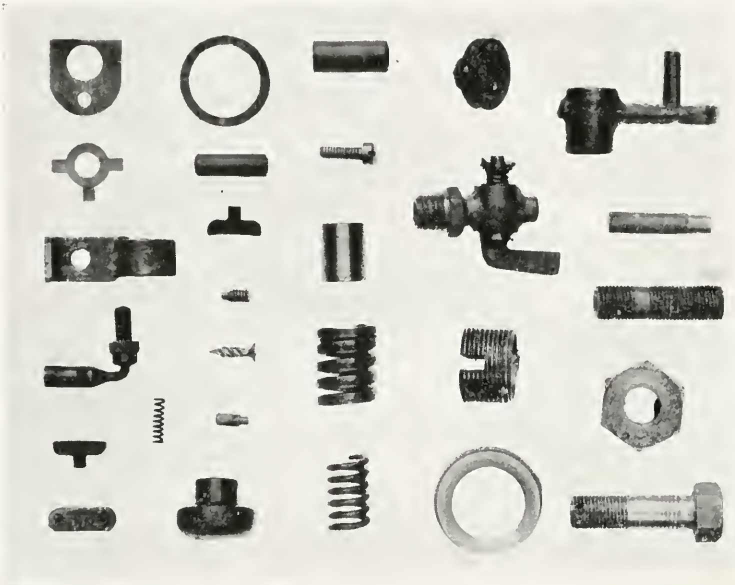


Fig. 37

Of course, in a set-up of this kind, you are facing strong light, which absolutely puts the single-coated plate out of the running unless it is backed, for you would get halation galore. For this reason, film is exceptionally good, and if a plate is used, it should preferably be of the double-coated type, where the under emulsion is a slow one and the upper emulsion fast; such a plate being

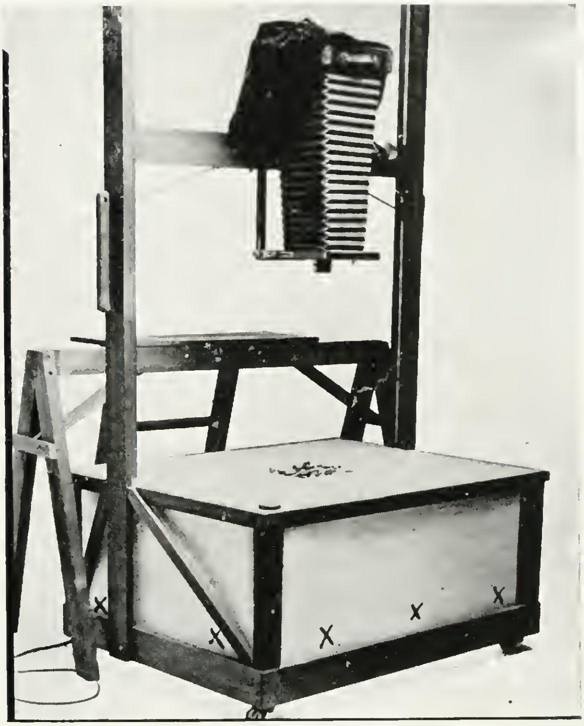


Fig. 38

the Seed Non-Halation, Cramer's Non-Halation, or the Hammer Aurora. The Wratten Panchromatic, being a backed plate, is ideal for this work.

Illustration No. 39 shows another type of set-up, being a combination of vertical and shelf set-ups. In this case, the customer wanted to show the peanuts full size, and yet wanted to show the large can, in which they were packed, on the same print. The peanuts in paper cups were photographed on the vertical camera, and the container on the shelf. As the exposures were all made on film, they were easily cut apart and all mounted on a 10 x 12 glass and then blocked out. This film is a wonderful help in such cases, and a big improvement over the days when you had to cut the glass; especially when nobody knew where the glass-cutter was, and perhaps the errand-boy had been practicing with it, with the result that a plate was spoiled.

In photographing any complicated mechanism which must be blocked or have a pure white background, and cannot be photographed on a vertical, for instance, a motorcycle, to save a lot of work, set it up on your platform about three or four feet away from a pure white background. Place an electric light on each side, in such a position that it shines directly on the background and not on the object being photographed. Give enough exposure so that the background will come white, in much the same way as when using the vertical camera, then cut off the electric lights and expose for the detail.

Another proposition that arises at times is in connection with making negatives for catalogue half-tones when the customer has all his pages made up, that is, electrotypes and half-tones set up, and he then discovers at the last minute that an article is out of style, out of stock, or something has gone wrong necessitating a change in cut and a new photograph made for substitution. The problem then put up to the photographer is to photograph the substituted article so that it will exactly fit into the empty space, which is really more difficult than it sounds, as oftentimes the article, say a box, is posed on a slant and tilted in different ways.

One procedure on a job of this kind is to take tracing or tissue paper and make a tracing of the old cut, or photograph if you have it, and then make the new photograph to conform with this tracing, using the tracing paper against the ground-glass of your camera to follow it more exactly in focusing. Some operators put a little castor oil or glycerine on the paper to make it more transparent. This is a job that comes up often in doing engraving house work, and usually is a tough one, as it means putting the camera in exactly the same relation to the article as the other operator had it, and using the same focal length lens.

If one is perplexed at times to get a set-up that looks symmetrical and at the same time fairly conventional, and is at his wit's end for ideas, a little

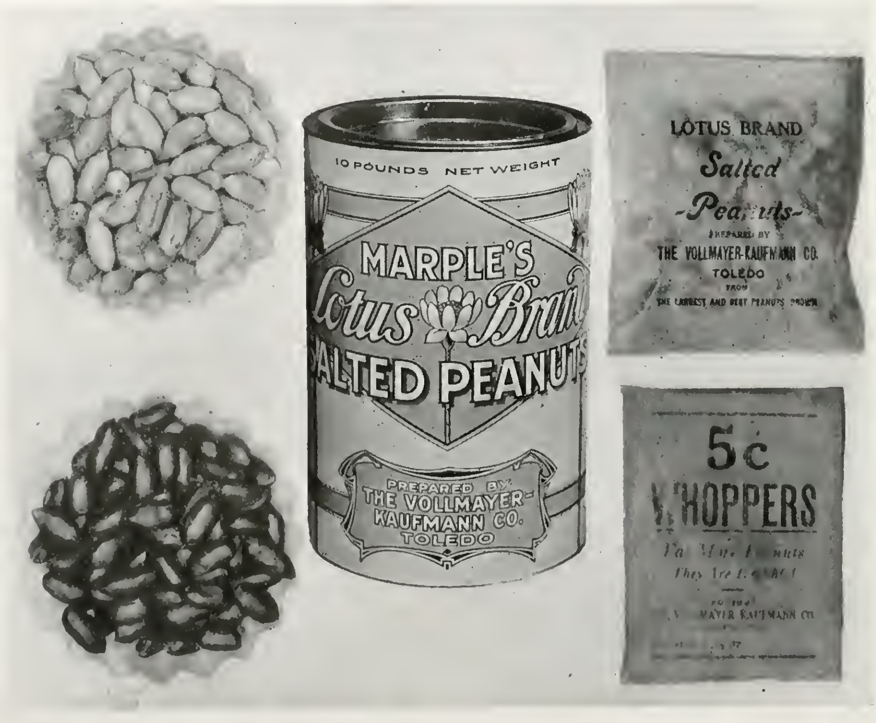


Fig. 39

suggestion that may be in place at this time, is to keep a supply of catalogues on hand covering the various kinds of business that are in his vicinity and keep up-to-date in ideas. Do not let the customer have to fill you up with ideas. Give the *customer* an idea now and then.

The kind of plates that will be used in the studio for merchandise and catalogue work is varied and ranges from process films or plates clear through the color-blind, yellow sensitive and panchromatic plates. Films are rapidly supplanting plates in the larger share of this work, excepting with reference to jobs requiring the panchromatic plates, in view of their non-halation qualities and the fact that they give better results and are easy to handle, store and ship. Panchromatic plates are, of course, necessary for a great deal of work where reds must be given their correct color value.

The lens to be used in the studio should preferably be of fairly long focus, although I have often used an extreme wide-angle lens in certain set-ups for advertising concerns who often get what they call "ideas."

On vertical cameras, of course, most of us are limited to medium focus lenses, in view of the necessity for working close to the set-up. About the first thing that strikes you in using a vertical, is that your lens is giving seemingly distorted images, and it will be found that the extreme corners will have to be tilted in slightly, that is, the center of your set-up is lower than your outside edges, which will have to be pulled in, much the same as in group work with the old style lens.

Waste of Plates.—It is the habit of some operators to make an exposure, and then make another to see if they can better the first or make it a little bit different. To my mind, that is foolish waste. It not only wastes plates, but it destroys confidence in your own ability and always arouses a suspicion in a customer's mind that if you made another you would get it still better. I know for a fact that it can be done away with, as many of the big studios charge every plate to their operators and make them show a negative of some kind for every plate issued, and it makes good operators. They rarely, if ever, miss on an exposure, as they think instead of guess. Another phase of this matter is that you have not got a lot of plates lying around on which no order can be obtained, and which are chargeable against the profit on a job.

CHAPTER XIII

FURNITURE

THE making of negatives of furniture and prints was one of the first branches of industrial work that called the photographer into use in helping to sell goods. Thirty to thirty-five years ago, some furniture manufacturers were using photographs, and it is certainly interesting to talk to the old fellows and learn their trials and tribulations when working with slow and color blind plates, and to compare the results with those now obtained with the modern color plates, ray filters and lighting methods. This work today is child's play to what it was fifteen to twenty years ago.

Most furniture is photographed in the factories where it is made, nearly all of the larger plants and many of the smaller ones having a room for this purpose, which is usually their display room, with a skylight and a plate changing room for the photographer, making the work comparatively simple. In fact, most operators consider it a poor day's work if they do not make eighty to ninety negatives, that is, in the general run of factory work. It is for this reason that photographers have the matter of low price to contend with, for some photographers have gotten the price down to 75 cents to $1 for 8 x 10 negatives, and occasionally lower, they contending that the simple arrangement, the manufacturer furnishing the camera and by putting boys on to the work of doing any necessary preparing of furniture and making the exposures, allows them plenty of profit.

This is all to be very much deplored, as are low prices in any line.

The general procedure in photographing in the factory, or in the studio for that matter, for a long run is about as follows: Lines are drawn just off the background and each piece brought up to those lines; the camera is practically never moved and the exposures go along one after the other and the only changes made are in plates, pieces of furniture and number on the signs. The manner of exposing for the signs, such as shown in illustration No. 40, may be of interest. This is a fair average of factory photography. The lettering for such a photograph is set up in a frame alongside the piece and is exposed for a short time, say ten seconds, when it is covered with black velvet and exposure made for the furniture itself. The negative is then blocked for printing.

As for preparing furniture, that is a question which must be decided for the individual case. Certain manufacturers insist upon their stuff being photographed in the white or unfinished state and positively will not stand for any dope of any kind. Others give it a sort of filling coat, which seems to bring out the grain very nicely, and then again the photographer does his own pre-

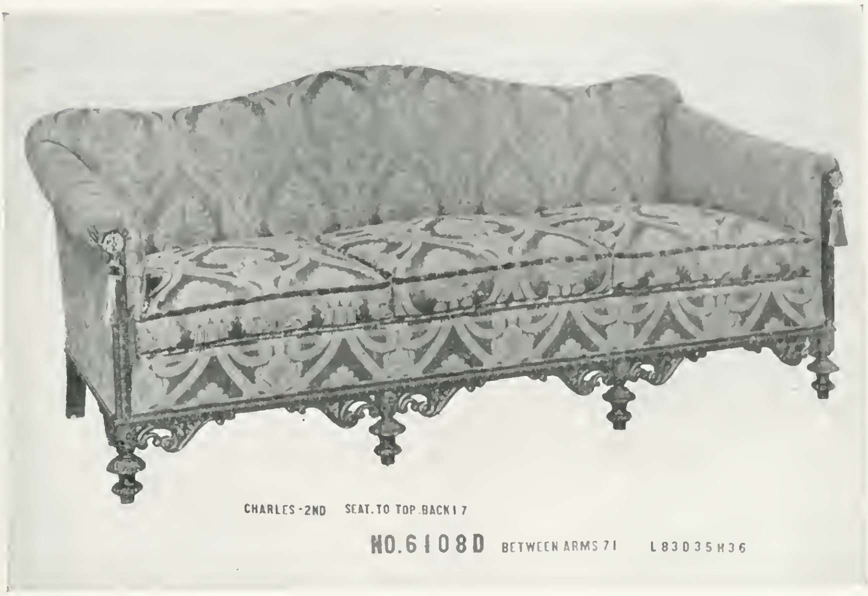


Fig. 40

paring, using a mixture of kerosene and gasoline, the gasoline being the ingredient that does the business and the kerosene keeping the gasoline from evaporating until the exposure is made. Or, you can use gasoline and pariffine. What I consider the best of all is Cedar Oil, but that is rather expensive.

However, it is in the photographing of finished furniture, which is highly polished as a rule, such as pianos, tables, etc., where considerable ingenuity is required in getting away from reflections and obtaining a satisfactory result.

There have been several methods recommended to eliminate white reflections, among them what is known as tenting, that is, to stretch muslin all around the piece and connecting it to the camera, so that all the light is filtered through this muslin in reaching the furniture itself. That has several advantages for some work, but the disadvantages to my mind offset the advantages. That is, to begin with, it takes considerable time to put it up, unless frames are made for it, and it has to be taken down for every piece. Then, again, it throws white reflections on the articles (unless darker muslin is used, when it takes longer for the light to filter through the tenting), which is highly detrimental to a piece of mahogany or rosewood. As speed is very essential, if one is going to compete with the price business, it comes down to a system of working with your open light, putting the pieces against the light ground with dark reflectors in such a position that they will reflect upon the polished piece of furniture and make the illumination even. While it takes considerable time to get the reflectors in their proper positions, they will usually do for the whole run of tops, and can be used in different positions for practically any style of furniture.

In photographing furniture, the position of the camera is very important. That is, in most pieces, you must show all four legs, give about a three-quarter view, show the general construction and design, such as under shelves in tables, which means that the camera must be worked fairly low. Where it is necessary to show some distinctive design in a table top and still show all four legs, the better course is to use the camera fairly low to get the legs right, tilt the top of the table forward, and use your swingback to the limit. This is only one of many cases where an excessive swing is used to great advantage in commercial photography.

The photographing of furniture containing mirrors is also a problem that has to be met. While in the general run of factory work, the mirrors are usually blocked out when photographing furniture for exhibition and other purposes, the mirror will have to be photographed to show as a mirror, which means you will have to tilt the mirror at such an angle that it will not reflect surrounding objects, or better still, a black, white or gray screen, according to the color of the furniture, may be placed opposite the mirror to get the right result.

As to the lenses—a lens for this line does not have to be one of high-class, although, of course, such a lens is preferable. Many of the commercial shops are using the old-time lenses—in fact, you would be surprised if you knew how old some of them are and how cheap they can be picked up occasionally. I have a lens that I will wager is fifty years old, if it is a day, and it is doing very creditable work on furniture and giving excellent definition. It is a thirty-one inch focus Somerville. I do not suppose you can buy a new one today, and while it is clumsy to carry and slow, *distortion of perspective*

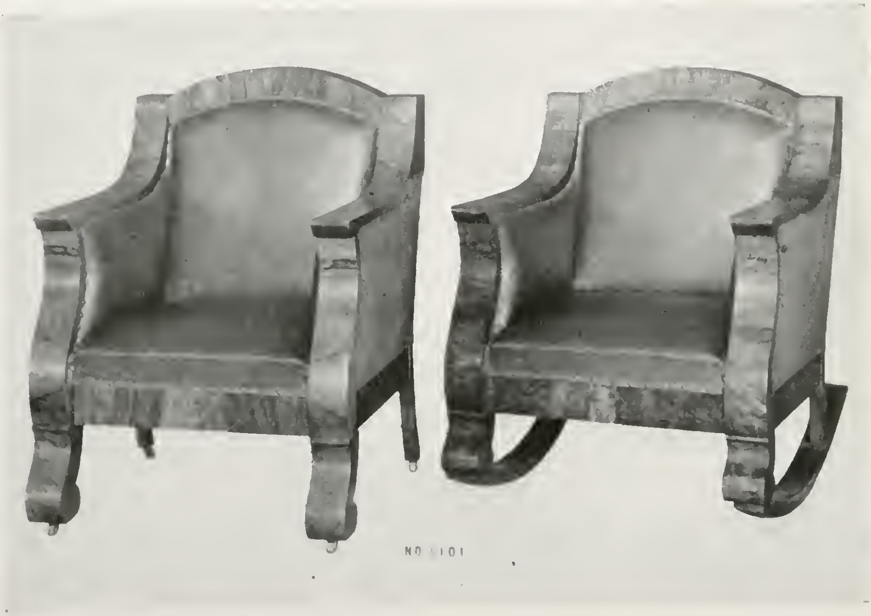


Fig. 41

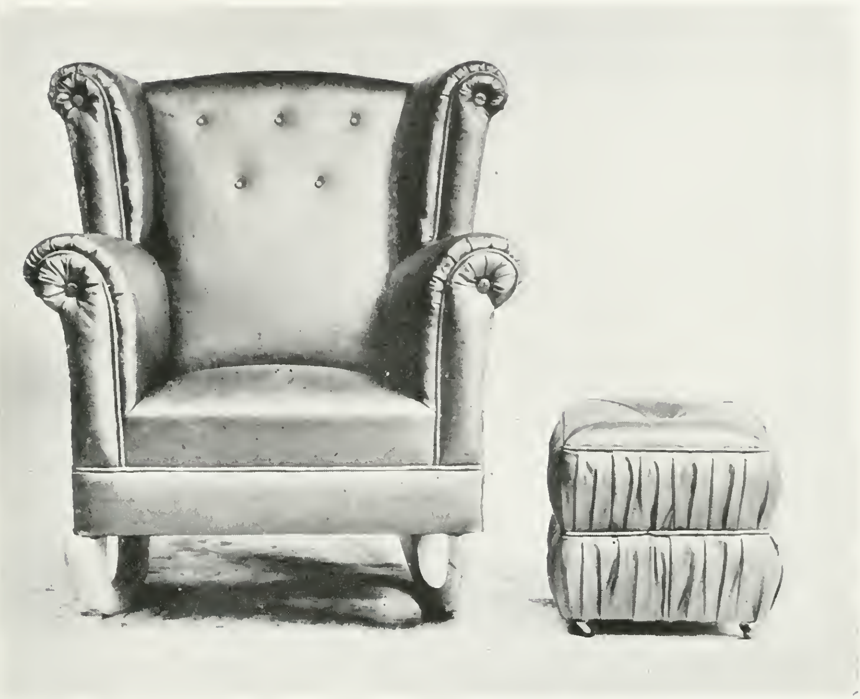


Fig. 42

is unknown to it. The main requirement of a lens for furniture is that it be of very long focus.

Panchromatic plates are a real necessity in photographing mahogany, rosewood, cherry and all red-toned woods and, used in connection with a deep screen, the results leave nothing to be desired. The filter you will use will depend upon the kind of wood. The A and F screens for reds, the G on light woods to bring out the grain strongly, and the K-3 on panchromatic plates to give a normal correction.

The K-2 filter is used principally in connection with Commercial Ortho film and gives wonderful results, as does the Commercial Ortho film also without a filter when used on prepared furniture or light woods.

Illustration No. 41 is a group of chairs made on Hammer Aurora plate with no color filter. No. 42 is a chair and stool made for advertising circulars, on Commercial Ortho film with K-2 filter.

Although the manufacturers' end of furniture photography is extremely cheap, there is one line which has proven profitable in localities inhabited by the wealthy, and where, naturally, the antique shops will be found. This is the photographing of fine, old furniture, and is really quite a field and can be worked in conjunction with the photographing of rare rugs, tapestries, bric-a-brac and paintings. In this connection, the best of photographs have to be produced and the prices for this work are generally good.

CHAPTER XIV

STOVES

ILLUSTRATIONS used for stove catalogues formerly were made by the wood cut process, giving very sharp, clean lines, and an even appearance all through which, I think, is the cause of the requirement for so much preparation in the photographing of stoves nowadays.

The stove, to my mind, does not look right prepared, and I am of the belief that the time is not far off when the manufacturers will insist that the stove be photographed in its natural state. I do not mean just put the stove up and give it a "whack" in any old way, but I really think that if a stove is placed right, the proper lighting and exposure given, and good care exercised, that that photograph will look more natural and will sell more stoves to the average customer than one all doped up to make it look like a Fifth Avenue display.

Nevertheless, most of the stove companies now require that their stoves be prepared before photographing, and a good dope for this purpose is made of lamp black or drop black that has been cut in alcohol, thinned down with water and applied with a soft brush, or with an air brush that will take heavy mixtures. The nickel parts either should be puttied or painted up with zinc ointment, and a great deal can be done with these parts by the proper preparation, that is, getting the coating, whether putty or the zinc ointment, on smoothly.

A real help in properly illuminating the stove is the tenting mentioned in the previous chapter, as the white muslin throws a light reflection into the dark crevices, and tones down the black surface.

In view of the great range of contrast from the whites clear down into the black, the exposure given will have to be very full, and should be made on a double coated plate such as the Standard Orthonon or the Hammer Aurora, or a film with considerable body, which means the Commercial film or Commercial Ortho.

The lens, as in furniture, will have to be one of very long focus, especially for ranges, and the position of the camera should be fairly low to show the four legs and also give a more massive appearance.

Prices for stove negatives, including preparation, unlike that of furniture, are generally quite fair—in fact, I do not know of any kick one could make in this connection, so it gives the photographer time to dope the stove and still make money by this method.

Another way to photograph stoves, and a method frequently used by manufacturers, especially in the small towns where they do not want to go to the expense or inconvenience of sending their stoves to the specialist, or

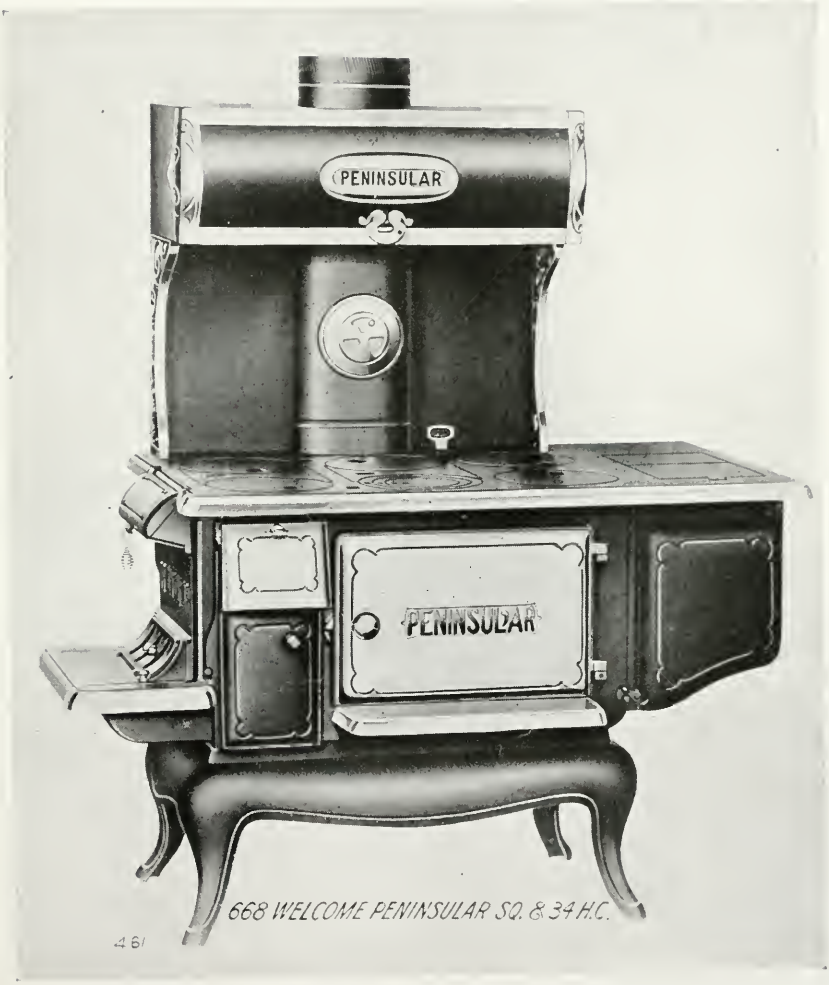


Fig. 43

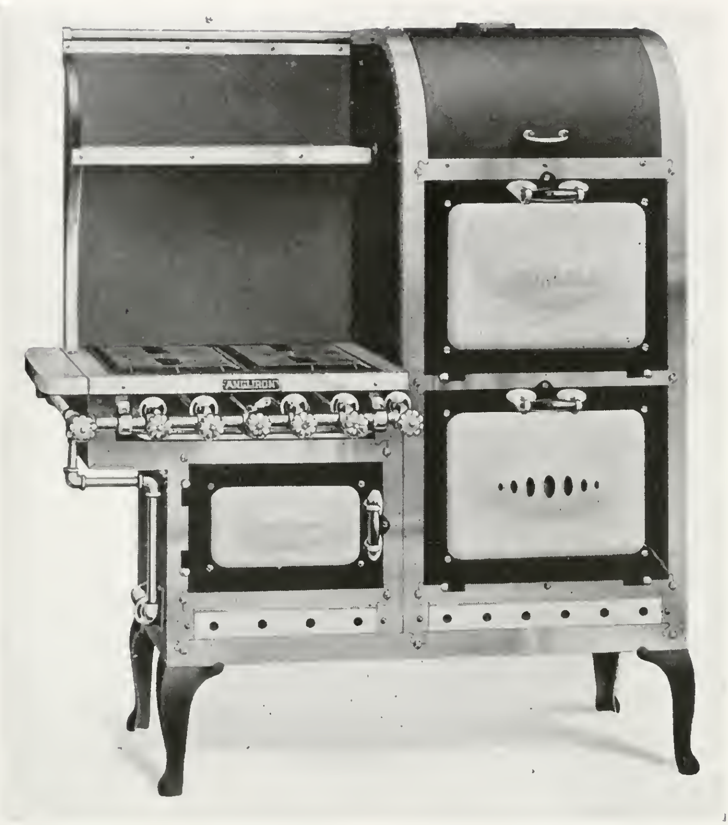


Fig. 44

bringing him from the city, or where no one is at hand to do this preparatory work, is to make an 8 x 10 negative of the stove with almost any kind of a light, really paying little or no attention to this end, but getting the proper position. That negative is then blocked out and an enlargement made to 11 x 14 or 14 x 17 for retouching by the commercial artists, employed by the photo engravers who are making up the catalogue. Should prints be wanted for traveling men's sample books, those retouched enlargements can be copied and prints made from the copy negative.

Illustrations No. 43 and No. 44 show stoves that have been made by this means, and while an artificial appearance is given to the stove, some manufacturers seem to like it.

Illustration No. 45 is a photograph of a stove that has been prepared, and No. 46 shows a stove, photographed with a living model, for advertising purposes. This latter line calls for a lens of good covering power and plenty of light, either daylight or artificial, but mostly daylight supplemented with some artificial light. It is a good field and one highly remunerative.

The Heiser Co., Cleveland, Ohio Fig. 45

The Heiser Co., Cleveland, Ohio Fig. 46

CHAPTER XV

MONUMENTS

MONUMENTAL companies and big granite people, who job granite to the monument factories, are consistent users of photographs—it is practically the only medium now used to sell monuments, and while there are only about fifteen really large companies in the United States who design and build monuments and mausoleums, they have extensive sales forces and secure contracts in every section of the country. Also, practically every large piece of work is photographed.

This is very nice work and for the most part is largely in the hands of a few photographers who specialize in monuments only. One party I have in mind particularly, travels constantly all over the country, going to the various cemeteries and photographing any new or unusual designs which have been set in place since his last trip, and he uses these as stock negatives from which he sells prints to the monument people for use by their designers.

All of the large manufacturers, who create their own designs, have about everything they produce photographed, and their salesmen carry all their samples in the form of photographs.

The proposition in photographing monuments is that the maker wants to show every detail in the granite, the lettering and design, and as the monuments are usually set in place prior to being photographed, it is a matter of selection of the right time of day to bring these items out well. A front side light is generally preferable, and if it is not possible to secure such a lighting as in the case of a monument set facing the north, the photographing had best be done on a day when the sky is overcast.

Another matter to consider is the background, for it does not take much to detract from the general appearance of a monument. Illustration No. 47 shows a monument with numerous other small stones in the foreground and off to the side, which decidedly mars its attractiveness, although it is really a very fine stone and a good seller. A bromide enlargement was made from this negative and the disfiguring stones were touched out with a mixture of India ink, a minute quantity of white water color and burnt umber, thinned down slightly with water. A little practice makes this work comparatively easy and the camouflaged stones make good looking shrubbery, as seen in illustration No. 48.

In cemetery work, there are a number of other details with which much care must be used. First of all, dirt should be cleaned off the monument and high grass carefully pulled away. Then, again one frequently encounters cases where, in getting the proper view of a monument with the camera in a fairly low position, there is another monument, possibly a little distance away and generally a high shaft, or a smoke stack or other disfiguring element, showing over the top of the monument being photographed. One way to get away from this is to collect some branches, which workmen are constantly trimming from trees and bushes in the cemeteries, and have your assistant hold them up a little distance back from the monument so that they will hide the undesirable feature, and keep the branches in motion while the exposure is on. This is very good camouflage and produces a much more desirable result than otherwise.

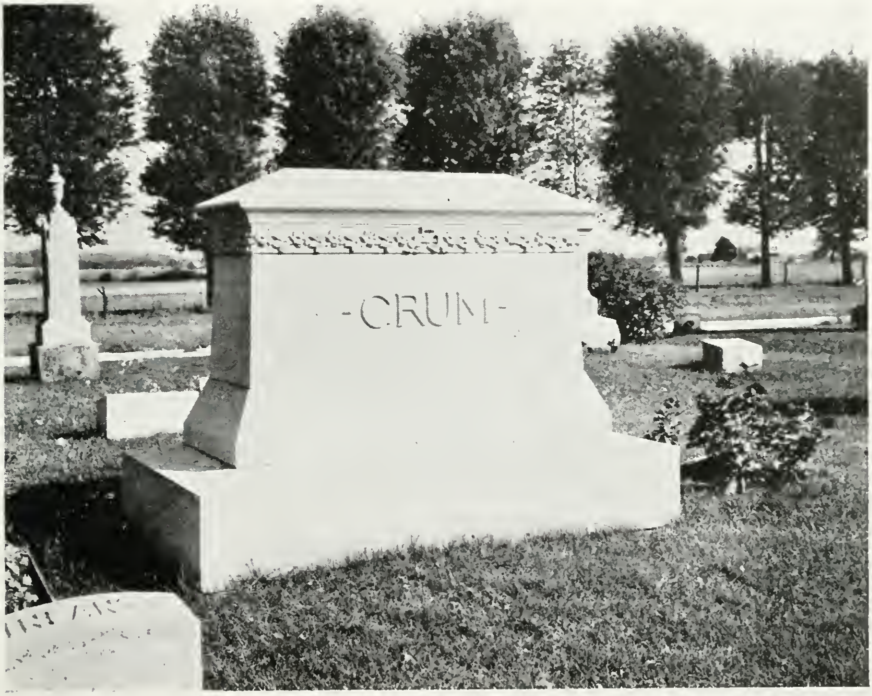


Fig. 47

Some manufacturers are now having monuments, excepting those which are too large to ship complete, such as mausoleums and memorials, and which have to be built on the site provided for them, photographed in the shop. Illustration No. 49 is a photograph made in this manner, with a side light from a window, and gives an ideal effect such as desired by the designers. The lettering stands out prominently and the granite shows to advantage. Should the operator encounter reflections, as is often the case in photographing red or black marble, both in the shop and in the cemetery, a black screen can be carried along and used to kill these reflections, if placed in the proper position.

You will notice that this is an absolutely pure black background, and as much of this kind of work is done, the proposition is to do it quickly and easily. Of course, it can be dug off with an etching knife, but this does not make a clean job. The method used to remove the film, in this instance, was to outline the monument which, by the way, should be photographed on a plate, with a sharp etching knife, that is, the film was cut through to the glass all around the monument. The film of the whole plate was then just wet through—just barely wet, when the negative was taken from the water, the surplus moisture dried off, placed on the retouching stand and the edge of the film caught up by the etching knife and rolled off the glass, leaving only the image of the monument on the clean glass. With a little practice you will find it is not at all difficult.

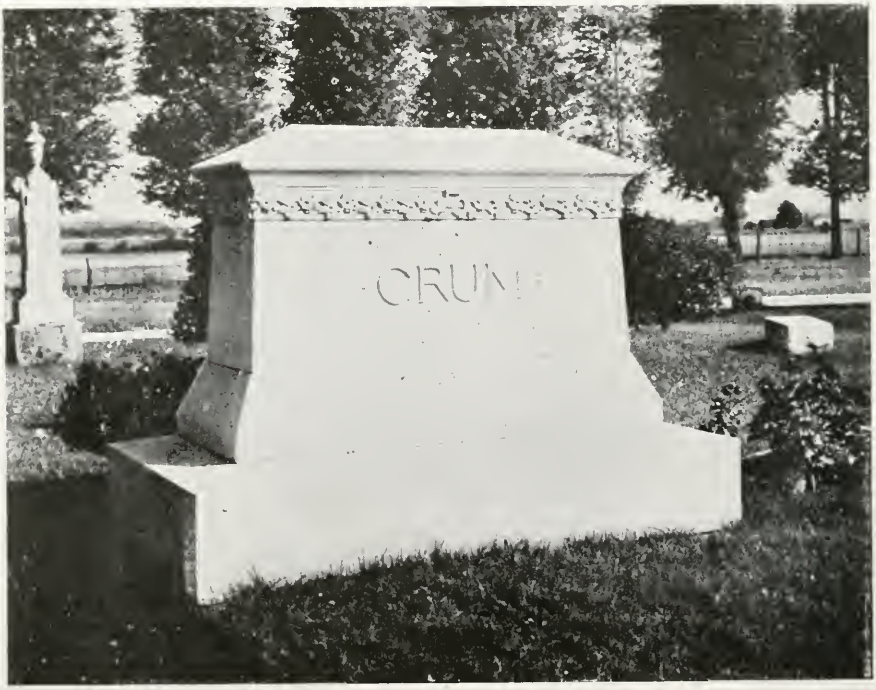


Fig. 48

Sometimes this film will not peel off readily. This is usually due to two things. The first is, probably the fixing bath was old and it did not have enough acid in it. The second may be that the film is too wet. It must be just wet through and that is all.

The lens to be used does not always have to be of long focus, as a medium lens, say 12 to 14 inches, answers very nicely, but, of course, it has to be a lens of good covering power and the position of the camera must be low to give the appearance of massiveness. A favorite position is to show just a trifle of the end and all of the front. In photographing mausoleums, a long focus lens is far more preferable, but it should always be kept in mind that the monument people want them to show as impressive as possible, as future sales depend upon these photographs, that is, showing the most for the money.

A good plate for this work, especially in the shop where the background has to be skinned off, is the Standard Orthonon or any double-coated plate, not necessarily color sensitive. For outside work, where you have to go many miles sometimes and to photograph under all sorts of conditions, I do not think there is anything better than film used in connection with a yellow ray filter to give proper rendering of the foliage and background.

The size of the plate used is generally 8 x 10, although some prefer 11 x 14. The prints from the 8 x 10 negatives are then made on 11 x 14 paper with a large white border and backed with muslin.

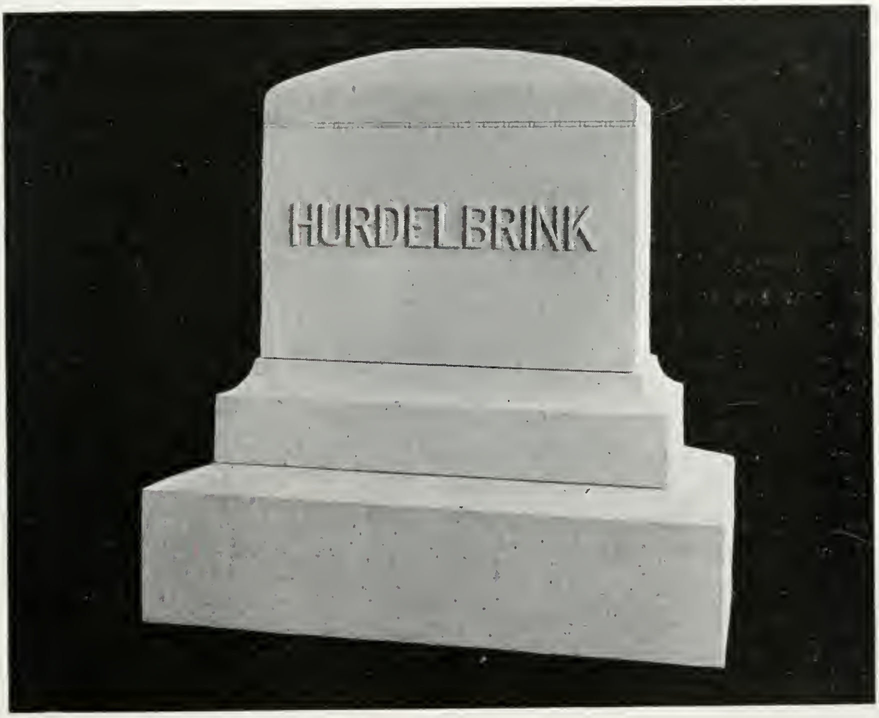


Fig. 49

CHAPTER XVI

CUT GLASS

IN the past there has been more mystery surrounding the photographing of cut glass than possibly any other commodity, some people even paying fairly large sums of money to have others teach them how to do it. The difficulty has undoubtedly arisen through the fact that, while a piece of cut glass, in a good light, is a very beautiful object to the eye, when photographed in a natural state, it is very disappointing. This is probably due to the reflecting of one cut into another and the design on the back showing through, causing a confusion of lines.

Cut glass can be divided roughly into three classes: deep cut, shallow cut and etched or engraved glass.

Single pieces of deep or shallow cut can be handled very nicely in what is known as a shadow box with which we are all more or less familiar, and which consists of a square box open at two ends and lined with dark velvet, felt or flannel. The object of the shadow box is to cut down the reflections from one cut to another and also enables one to control the light locally. Many very pretty effects are gotten by placing the shadow box against a light, or a piece of white cardboard, using reflected light, which produces a back light or what would be known in portraiture as line lighting. This back light, with just enough light in the front to give detail on the camera side, makes a very satisfactory way of photographing one or two pieces without any preparation whatever. If there should be any trouble of the design from the back coming through, it may be sprayed very lightly with a solution of dextrine and condensed milk, such as mentioned a little later.

However, this method cannot be employed in large set-ups such as are necessary when making photographs for salesmen's samples or for catalogues, where the manufacturer will want all pieces of a certain cut and design on one page in showing his line, and the operator will have to use a dope in working in the open light.

Some operators use nothing but blue analine dye sprayed on with an air brush, with just enough gum arabic solution to make it stick. Another method used quite extensively is to spray on ordinary opaque with an air brush, covering the entire outside of a piece. When the opaque is dry, it is held over a jet of live steam to just slightly moisten the opaque and then powdered graphite or plumbago is dusted on, the surplus shaken off and, when dry, the piece is polished with a soft brush such as a shoe or clothes brush. It sounds like a mussy job, but when you have things working right and handy, it goes very quickly. In fact, it is work usually performed by boys in the larger places who soon become quite dextrous and can turn out an enormous amount of glass in a short time.

Illustration No. 50 is a good example of cut-glass work prepared in this manner.

While this method is often complained of as giving a wooden or iron effect, it brings out the design wonderfully well and, as cut glass is sold practically to dealers only by the use of these photographs and they are acquainted with the article itself, the design is really the only part in which they are interested. This is quite an old dope, although it is still much used, one of its advantages being that the opaque is soluble in water and therefore easily removed, a big consideration when photographing a large quantity of glass.

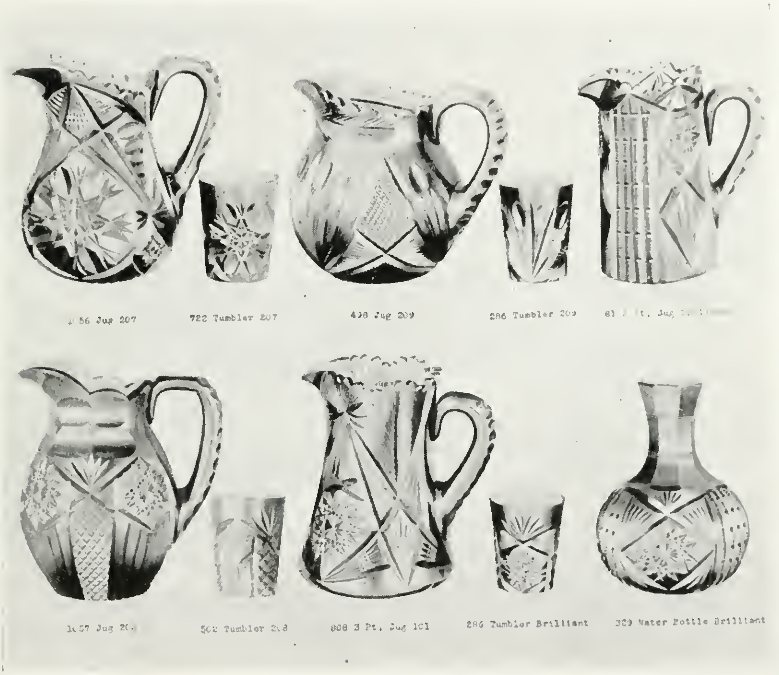


Fig. 50

Another dope is a water color paint which will photograph white, or nearly so, on which is dusted just enough graphite to give a slight sheen. This brings out the cut and gets away somewhat from the iron or wooden effect given by the opaque and yet has all its advantages.

Still another method is to spray on a sizing of some kind or other and then apply aluminum bronze. This gives a fairly nice effect, although it is harder to get off after photographing and shows somewhat of a grain which is, to my mind, objectionable.

One important item, no matter what preparation is used, is to clean the cut glass after the photographic work is done. Also it is well, when signing a contract to photograph cut glass, to have a clause inserted whereby you are released from responsibility in case of breakage as, in preparing the glass, there is a big chance of a piece being dropped and if it happens to be a large punch bowl, the profits are gone.

In making the set-ups for catalogue work, one should familiarize oneself with the positions generally used, for they are absolutely standard and any variance from them is rarely tolerated. It is for this reason that a vertical camera is really a necessity, as it is quite impossible to get the standard positions in any other way.

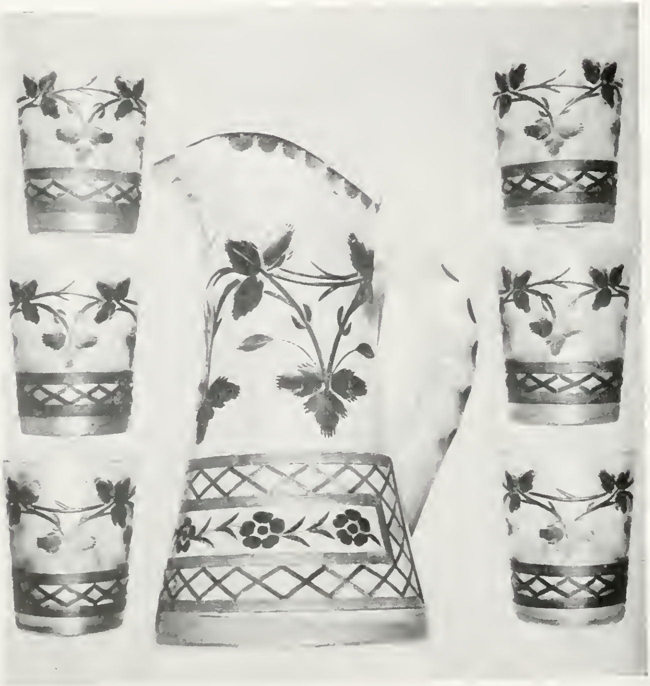


Fig. 51

Illustration No. 51 is a set-up of etched glass which was prepared as follows:

Chrome yellow oil paint was carefully rubbed into the etched design, being careful to get it in even and not too heavy. Then, to eliminate the design on the opposite side showing through, it was sprayed with a mixture of condensed milk and water, with just sufficient solution of dextrine to make it hold. When dry this has a light sheen. Some operators use rouge mixed with vaseline to bring out the design, but I have found the yellow oil paint gives the better result. This set-up was made on a vertical camera, while that shown in Illustration No. 52 was photographed on shelves.

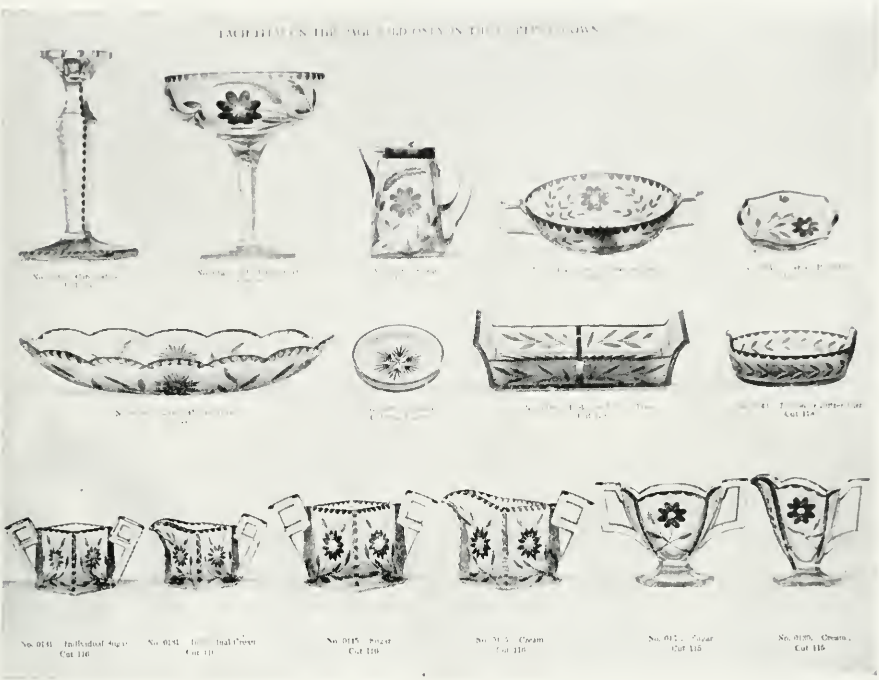


Fig. 52

Illustration No. 53 is a photograph of an atomizer, in which the customer wanted to preserve the transparent effect as much as possible and at the same time show the design up well. This was accomplished by rubbing the oil paint into the design, as before mentioned, and cutting down the reflections on the glass and toning down the design on the opposite side by the use of a mixture of tripoli powder (a fine polishing powder) and lard oil of about the consistency of thick cream. This was applied with a piece of cotton and smoothed down with a camel's hair brush and the result was most satisfactory.

It is not necessary to use a color sensitive plate for all forms of cut glass, although it should be of the double-coated non-halation variety. A commercial or commercial ortho film is also a good selection.

When properly equipped and for a nice run of work, cut glass is easy, but when you are not so equipped, I do not know of anything that is any harder and requires more time and patience.

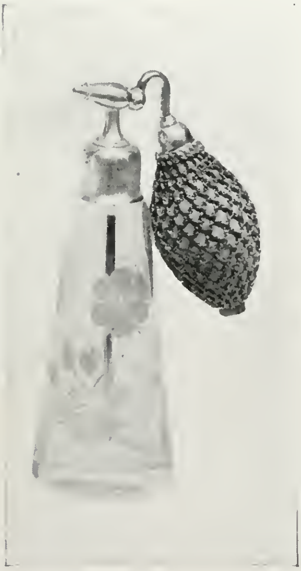


Fig. 53

CHAPTER XVII

SILVERWARE

THE photographing of silverware has the reputation of being somewhat difficult of accomplishment but, like cut glass, when one is properly equipped, it is really not so hard, and commercial shops in the East especially have a great deal of it to do.

Also one may pursue a different course in photographing the single piece to be used for a newspaper cut than when photographing for traveling men's sample books or the manufacturers' catalogues.

Illustration No. 54 is a photograph of a cup used for newspaper and magazine stuff. This was prepared first by rubbing common oily shoe polish into the lettering. After this was set, which was in a few minutes, it was puttied and then smoothed out with a camel's hair brush. The cup was then tented in with white muslin, two electric lights used on the outside of the tenting supplying the illumination.

This method is all right for that kind of work and satisfactory for general purposes, but for real high-grade silverware, much preparation is hardly ever permissible, especially if the customer knows about it, and it should never be attempted without permission.

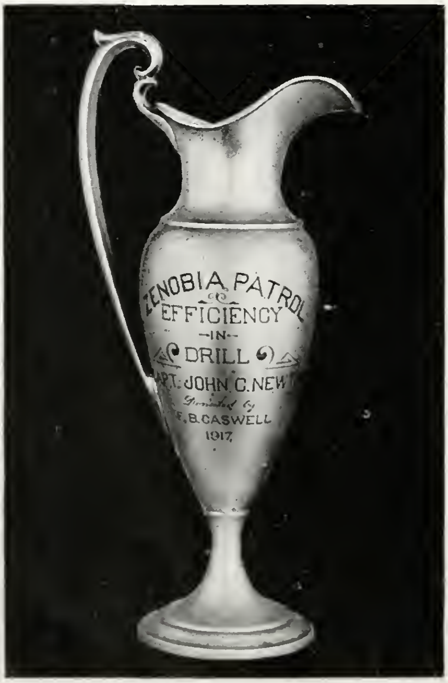
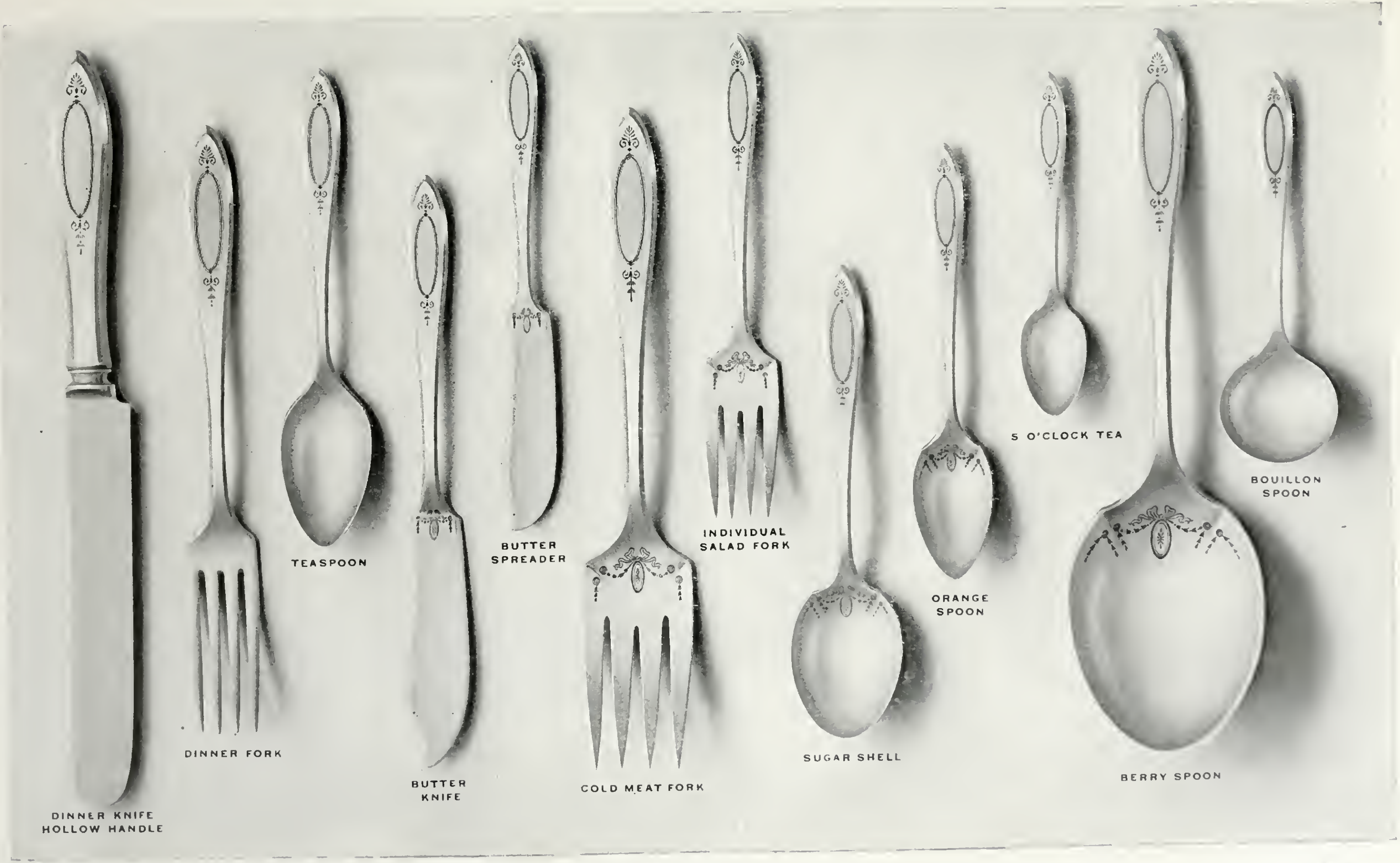


Fig. 54



Courtesy Oneida Community

Fig. 55

For this reason, the lighting will have to be handled much the same as in highly polished furniture, using screens locally, both to cut down the light and kill reflections, and as much of this work is done on the vertical camera, a rather low side light, somewhat broken up by diffusers to bring the designs into relief, will be found the most satisfactory.

In photographs for the better class of trade, considerable importance is attached to the background, the silver being set up on velvets, tapestries and fine lace pieces, while, for catalogue work, the photograph is turned over to the artist for retouching and he works in a suitable background to correspond with the rest of the catalogue before passing it on to the engraver who makes the cut. Such a layout is shown in Illustration No. 55. As mentioned before, no dope is used on a set-up of this kind, as the artist wants natural reflections to guide him in his retouching, but there does not want to be more than one source of light showing in the photograph and that should come from the same direction as the artist's lettering shadows.

Illustration No. 56 is an example of high-grade silverware photography to be used for traveling men's samples and also for dealers who are unable to carry a complete line to show to customers. This shows the possibilities of the line when handled in the right way and is really all in all a nice piece of work.

Silverware manufacturers are beginning to realize that real high-grade photographs will sell more goods and attract more attention and yet cost half the price of high-grade wash drawings, and is another instance of where commercial photography in its best form is coming to the front.

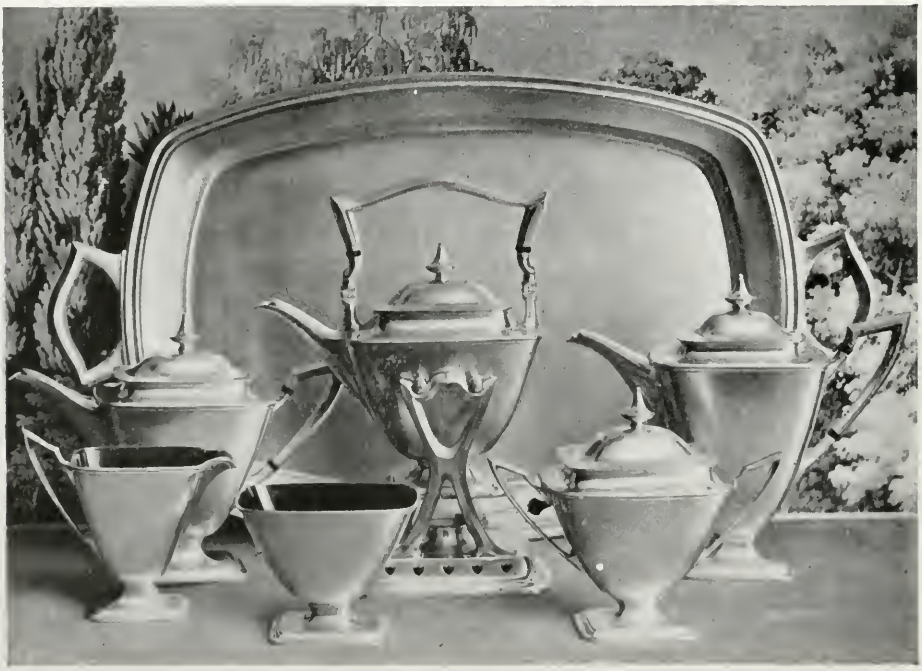


Fig. 56

Courtesy of J. J. Freeman Co., Toledo, Ohio.

CHAPTER XVIII

LEGAL PHOTOGRAPHY

LEGAL photography is fascinating to many photographers, especially those with an analytical turn of mind and it is exceedingly profitable when you can deliver the goods, which means, make photographs under any and all conditions and bring home the results—not always results that look good to you, but results that will tell the story and win a case.

There are a number of high-class specialists in this line who have what I consider a nice business. The work calls for a great deal of technical knowledge outside of photography and the real specialists are generally former law clerks or those who have had close affiliations with law offices, and who have a natural aptitude for photography and have become familiar with the requirements.

However, such a knowledge is not necessary when working under the direction of a lawyer or claim agent knowing his business, and while one is often called upon to perform a seemingly impossible stunt, it will generally be found that a way has been provided to obtain results. I have in mind a case where I was called upon to photograph the frequency of alternating current of electricity. When the job was turned over to me I thought to myself, "you cannot see electricity, how are you going to photograph it?" But I started out with the electrical engineer and found that they already had an apparatus on hand, but required a man with a good knowledge of photography to operate it. There are very few jobs where one cannot pull out with results if a little headwork is used and by putting across three or four good ones, a reputation is established for making good. When a lawyer makes good, he charges and charges high, and there is no kick to what the photographer charges if he can help them make good.

This branch of photography takes several forms. There are the making of photographs for evidence, photographs for records, handwriting, finger-prints, accident cases and the photographing of special stunts like the one above mentioned, and of conditions of materials such as steel and other metals.

The lawyer or corporation employing a photographer will know whether the photographs they are making will be admissible to court. Not all photographs are so admissible all the time, but that is a question concerning which there is a variance of opinion and requirements are different in different states, so I will not attempt to lay down any rules here.

Photographs of evidence to be used for evidence, must be absolutely clear and sharp and must be made to show the part or parts in exactly a natural way or light. This matter of light is somewhat important, as oftentimes an unthinking photographer will go into a room, for instance, and bang away with a flash lamp and the result is anything but natural, possibly exaggerating the very details desired shown. Time and thought must be given to every job.

Also, a careful record must be kept and plates numbered to correspond therewith, of the lens used, diaphragm opening, exposure, time of day, month and year, distance from objects, and name of the case. These should be kept whether you are asked to or not for your own protection, as it is very annoying to get on the stand to identify those photographs later and be unable to tell the date they were photographed or some other important information, and in these days of wise lawyers, especially on technical matters and patent cases, who may have a good knowledge of photography—or thinks he has—questions may be asked that will completely upset you, and if such a thing happens, away goes your reputation as a legal photographer. Otherwise, you are one step more forward toward qualifying yourself as an expert, which means a good salary per.

The photographing of handwriting is not so difficult as might be supposed and is a branch in connection with which the photographer is the more often called upon. The general procedure is to photograph the original handwriting, being sure that the camera is absolutely parallel with the copy board in all directions and giving the proper exposure—if necessary, using a panchromatic plate. There are instances where a process plate can be used, but, in most cases, it is too contrasty for the fine shading of the lettering. The reason the camera should be absolutely plane with the copy is so that there will be no distortion, for, if the case gets the least bit complicated, enlarged transparencies may be demanded for comparison with the original and forged writings and any distortion would not be tolerated, as may be imagined.

There is another branch of handwriting photography—the detection of erasure in, for instance, a check or a will. The procedure on a job of this kind is to make a direct enlargement of the place where the erasure is suspected, including enough of the surrounding paper to use it as a comparison.

It might be well to mention, before going any further, that there is considerable difference between a direct enlargement and an enlargement from a negative. In making a direct enlargement, the texture of the paper, the shading, in fact, every minute detail, is enlarged correspondingly, while, if a negative same size or a reduction negative is made, the texture, for instance, is lost to a more or less degree, according to the reduction, and you cannot enlarge something you have not got on the negative.

If a chemical has been used to eradicate the original handwriting, the substituted wording can generally be detected by the difference in the shades of ink used when enlarged directly.

This is where a moving picture lens, of a focus of say two inches, comes in very handy, for you will have bellows enough on an ordinary studio camera to make an eight, ten or twenty times enlargement direct.

The photographing of finger prints is sometimes rather disagreeable, as you will be called upon to photograph them in almost inaccessible places. Finger prints on light surfaces are more readily photographed by dusting on a little finely powdered lamp-black or graphite and then carefully blowing off the surplus powder. If on a black surface, it means they will have to be whitened. One way to do this is to dust on a little powdered calomel. This will bleach them out fairly white, and with a rather contrasty plate good results can generally be obtained.

Most railroads, street car and other public utilities corporations, which are liable to a lawsuit in case of an accident, have numerous photographs made of the scene of an accident directly after it occurs, so that they can reconstruct the place and put things back to normal, and when the time comes for a suit, they will have an accurate record of the conditions at the time of the accident. This photography is generally done under the supervision of a claim agent and usually simply means following his instructions and the making of good clear photographs. All plates should be numbered and accurate account kept of the distance from point photographed to the camera, time of day, etc. This is really profitable work, for it is quickly done and they do not care what you charge if they can rely on you and have confidence in your getting results, but they certainly do not want to bother with a fellow who is the least bit hesitant about his results, as oftentimes photographs cannot be remade.

There is considerable litigation connected with conditions of metals, such as used in bridges, boilers, engines, etc., which have gone bad. This is as a rule in the sphere of the metallurgist and he will be the proper man to direct the making of the photographs. It is usually a case of direct enlargement up to thirty and forty diameters and in special cases 250 to 500 diameters enlargement, although this latter is a high magnification and is, of course, done on a photo-micrographic outfit.

Then, there is the photographing of old documents, such as records of inventions, old deeds, and the like. This is always better done on a panchromatic or yellow sensitive plate with a G filter of the Wratten series, and by the use of this combination, you can get the paper to photograph nearly pure white, thus darkening up the ink enough to make it photograph black, which is about all there is to a job of that kind.

The type of lens to use on legal work is important. It should always be an anastigmat—the more free from astigmatism the better. Some photographers, who make a specialty of legal work, have their lens tested by the Bureau of Standards, at Washington, D. C., which, I believe, charges only a nominal fee for the work and tells the true condition of the lens.

The kind of plate to use will be governed by the work and conditions, but generally speaking, a slow plate, such as the Hammer Slow, Seed 23 and Cramer Slow, is to be preferred to the more speedy makes. As mentioned herein, Panchromatic plates will be found very satisfactory for copies, but the general rule of it is to use as slow a plate as the job will stand, as results will be far more brilliant and clear.

CHAPTER XIX

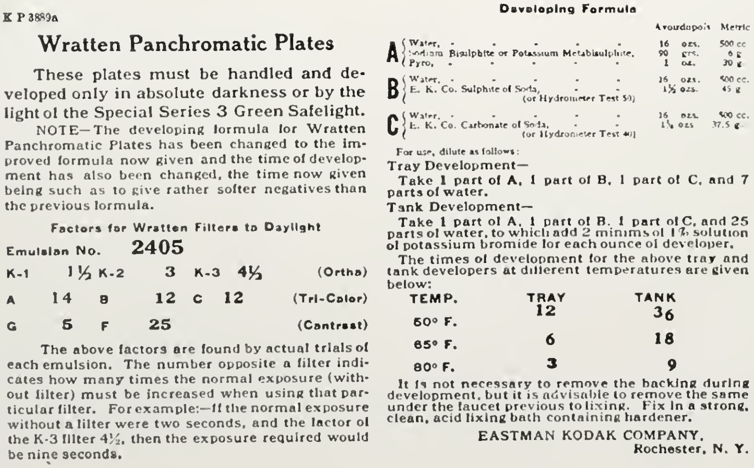
PHOTOGRAPHY OF COLORED OBJECTS

FOR a great deal of the modern commercial, technical and scientific photography, color sensitive plates and filters are practically a necessity—in fact, it might be said that they are a necessity. While it is true, old time photographers got really remarkable results without plates sensitive to red and the deeper greens, the modern photographer will get far better results much more quickly.

It is a known fact that all dry plates are sensitive to red to a more or less degree and by giving a prolonged exposure, sometimes running into days, it was possible to get a sort of negative and, by skillful printing, dodging, staining, etc., a fairly nice print was obtained. But, all that for the past. Today, the commercial operator gets negatives with any desired correction or separation, gets them quickly, and he has the satisfaction of knowing they will be right and of knowing it in advance of his exposure.

If you are doing work for photo-engravers, lithographers, commercial artists, etc., you will oftentimes have what are known as separation negatives to make, that is, where one or more colors are completely eliminated, but the most of the work will be correction, which is rendering the colors in proper tone in monochrome.

There have been so many very good articles and books written on this subject, and it has been the topic of so many demonstrations and so much discussion, that it is not in the sphere of this limited article to go into the theory



K P 3889a

Wratten Panchromatic Plates

These plates must be handled and developed only in absolute darkness or by the light of the Special Series 3 Green Safelight.

NOTE—The developing formula for Wratten Panchromatic Plates has been changed to the improved formula now given and the time of development has also been changed, the time now given being such as to give rather softer negatives than the previous formula.

Factors for Wratten Filters to Daylight

Emulsion No. 2405

K-1	1½	K-2	3	K-3	4½	(Ortho)
A	14	B	12	C	12	(Tri-Color)
G	5	F	25			(Contrast)

The above factors are found by actual trials of each emulsion. The number opposite a filter indicates how many times the normal exposure (without filter) must be increased when using that particular filter. For example:—If the normal exposure without a filter were two seconds, and the factor of the K-3 filter 4½, then the exposure required would be nine seconds.

Developing Formula

		Avoirdupois	Metric
A	Water,	16 ozs.	500 cc
	Sodium Bisulphite or Potassium Metabisulphite,	90 grs.	6 g
	Pyro,	1 oz.	30 g
B	Water,	16 ozs.	500 cc.
	E. K. Co. Sulphite of Soda, (or Hydrometer Test 50)	1½ ozs.	45 g
C	Water,	16 ozs.	500 cc.
	E. K. Co. Carbonate of Soda, (or Hydrometer Test 40)	1¼ ozs	37.5 g

For use, dilute as follows:

Tray Development—

Take 1 part of A, 1 part of B, 1 part of C, and 7 parts of water.

Tank Development—

Take 1 part of A, 1 part of B, 1 part of C, and 25 parts of water, to which add 2 minims of 1% solution of potassium bromide for each ounce of developer.

The times of development for the above tray and tank developers at different temperatures are given below:

TEMP.	TRAY	TANK
60° F.	12	36
65° F.	6	18
80° F.	3	9

It is not necessary to remove the backing during development, but it is advisable to remove the same under the faucet previous to fixing. Fix in a strong, clean, acid fixing bath containing hardener.

EASTMAN KODAK COMPANY,
Rochester, N. Y.

Fig 57

of it. I will discuss it from the practical side and try to overcome some of the little difficulties that are met with from time to time.

While there are several very good panchromatic plates on the market, the Wratten and the Cramer Spectrum are probably the leaders, and it has been the experience of the writer that, though others might be very good for some purposes, they are not the all-around plates that the two just mentioned are, and it never pays to use anything but the best.

The Wratten is a backed plate and gives most excellent results under any and all conditions. The one drawback to panchromatic plates, however, is that the manufacturers have been unable, up to the present time, to make them absolutely uniform in speed for all filters. For this reason, with every box of Wratten plates, there is an exposure card (See Figure 57), and as the exposure figures change with different emulsions, before making any exposure, especially with reds, it is well to consult the card accompanying the plates for that particular emulsion being used. I find that many operators pay absolutely no attention to these cards. That part is important if you are going to "bring home the bacon" and eliminate waste.

When to use a panchromatic plate and filters will be governed by the result it is desired to obtain. They should be used for studio work such as pianos and furniture finished in red, merchandise set-ups for catalogue work containing reds or deep greens and for photo-engraving color work.

When photographs are to be hand colored, panchromatic plates are more of a necessity than ever to give the proper color correction.

Outside of the studio you will need them on all cases where a correct color rendering is wanted, and many times a light yellow filter will be used with a yellow sensitive film or plate to eliminate the blue haze—especially is this true in mountain scenery and seascapes, snow work and in making pictures from high buildings and what are commonly called birdseye views.

There is a tendency among some workers to overdo outside correction, that is, to use too deep a filter. While it possibly is right to correct your blue sky down to a gray, nevertheless, there are very few customers who really like a dark sky, even if it has clouds in it, and we must remember that we are not selling the sky as yet.

The kind of filter to use and its position either before the lens or in back of it, or in between, is somewhat of an important matter. You should always use the filters made for the plates being used, that is, do not use Cramer filters on Wratten plates, and *vice versa,* and expect to get real results. I have worked in studios that used home-made filters and they seemed to work all right, but I have never felt really safe as I would with regular filters.

Many of the shops use gelatine filters for studio work, which are placed in a slot in between the front and rear combination of the lens. When they are so placed, it is easy to change the filters on a run of plates and does away with changing the focus after the filter is on, which is quite a good point and they are somewhat cheaper than filters put in optically plane glass, but the filter used on the front of the lens seems to be the most popular.

If you are going to photograph all-comers, you will need the complete set of commercial filters, but if you are just doing a certain line of outside work, you will only need the correction filters—the yellow series.

Of the Wratten series of filters, the K1 will be used mostly for a very light correction inside and fast exposures outside and is a good filter to use with a yellow sensitive film or plate.

The K2, which is somewhat deeper, and with mazda or nitrogen lamps on copies, will give practically a true correction, is possibly the filter more used than any other of the Wratten series.

The K3 is said to give an absolutely true rendering of colors in monochrome, but, for outside work, it is a little too deep.

The "G" filter is a contrast filter and should never be used on correction work, as it is too contrasty and therefore almost kills the yellow—makes the yellow photograph white—and, with a fairly light yellow, kills it completely.

The "F" or red filter is the other contrast filter which absolutely kills most red—makes it photograph white.

The "A," "B" and "C" filters are what are known as tri-colors. The average commercial photographer has but very little use for the "B" and "C" filters, as they are used practically only in separation work, that is, "B" kills the green and "C" kills the blue.

The "A" is used a great deal in red separation and correction work.

Attached is a chart of the Wratten filters and Cramer filters.

CONTRAST FILTER CHART

	To photograph dark	*To photograph light*
SCARLET RED:	Ordinary plate (Seed 23 or 26X)	Wratten Panchromatic plate and red "A" filter.
DEEP RED:	Ordinary plate (Seed 23 or 26X)	Wratten Panchromatic plate and red "F" filter.
MAGENTA AND PURPLE:	Wratten Panchromatic plate and green "B" filter.	Wratten Panchromatic plate and red "F" filter.
YELLOW:	Ordinary plate (Seed 23 or 26X)	Wratten Panchromatic or Orthochromatic plate and yellow "G" filter.
YELLOW GREEN:	Ordinary plate (Seed 23 or 26X)	Orthochromatic plate and yellow "G" filter.
BLUISH GREEN:	Wratten Panchromatic plate and red "A" filter.	Wratten Panchromatic plate and green "B" filter.
BLUE:	Wratten Panchromatic plate and red "F" filter.	Ordinary plate (Seed 23 or 26X)
SEVERAL COLORS TOGETHER	Are given perfectly correct rendering when photographed with the Wratten Panchromatic Plate and K3 Filter.	

CRAMER'S CONTRAST FILTER CHART

Color	Filter	Plate
To Photograph Red as Black	G	Iso
To Photograph Orange as Black	G	Iso
To Photograph Yellow as Black	B	Ordinary
To Photograph Yellow-Green as Black	B	Ordinary
To Photograph Green as Black	BR	Spectrum
To Photograph Blue-Green as Black	OR	Trichromatic
To Photograph Blue as Black	O	Iso
To Photograph Violet as Black	O	Iso
To Photograph Red as White	DR	Spectrum
To Photograph Orange as White	BR	Trichromatic
To Photograph Yellow as White	OR	Iso
To Photograph Yellow-Green as White	O	Iso
To Photograph Green as White	O	Iso
To Photograph Blue-Green as White	G	Iso
To Photograph Blue as White	B	Ordinary
To Photograph Violet as White	B	Ordinary

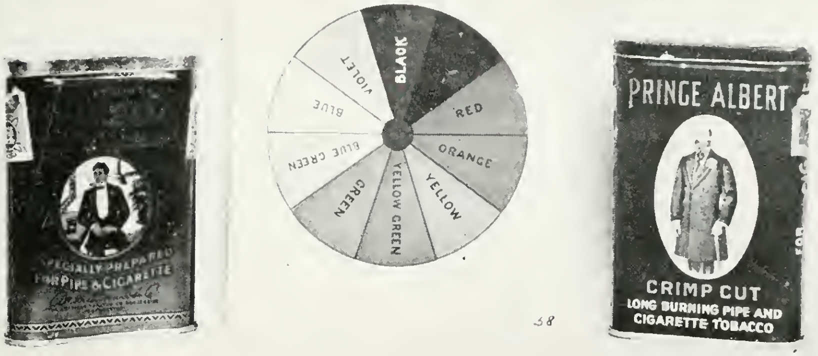


Fig. 58

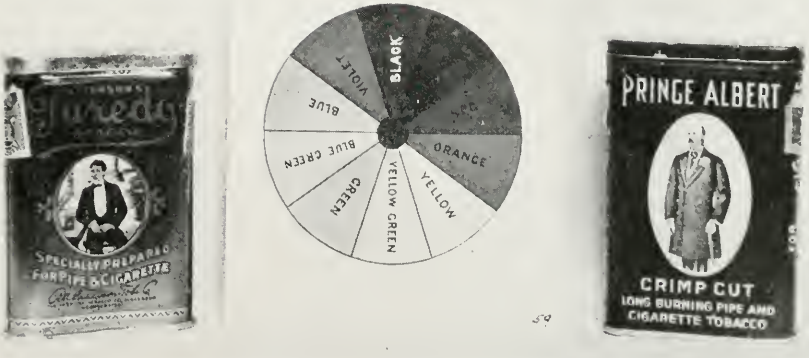
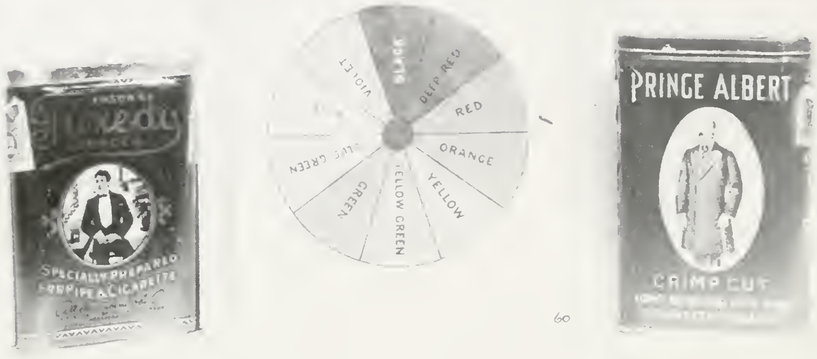


Fig. 59



60

Fig. 60

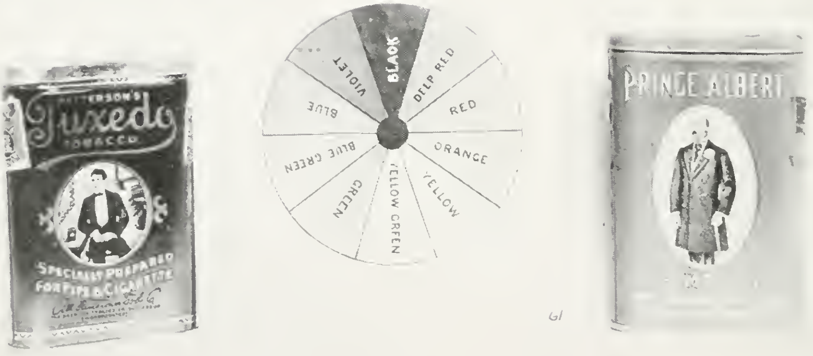


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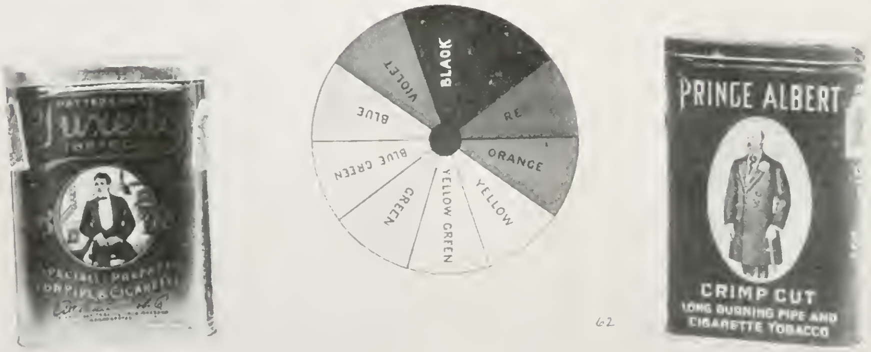
Fig. 61



62

Fig. 62

Many operators hesitate to use panchromatic plates on account of the trouble in developing them. In shops where they have automatic timers it is fairly smooth sailing, but otherwise it is a bit more unhandy, as the plates are sensitive to all colors and the only really safe light is no light at all. The Wratten (E. K. Co.) and Cramer people both furnish a fairly safe light which is of a deep green, and while, when first turned on you think there is no light at all, owing to the faintness of the light, after you are in the dark-room a little you begin to wonder if someone did not leave the door open.

For myself, I develop all panchromatic plates in absolute darkness, depending upon time and temperature alone and which I, of course, think is the best way. However, there are many different contrivances to use in this connection. About as good a way as any is to have a double tray or a tight fitting cover for the tray. After the plate is immersed in the developer, put the cover on, turn on the ordinary dark-room red light, take note of the time, turn out the light and proceed with what you think is about the proper time. Then, turn on the light, check up the time, and at the end of the proper period, stop the development.

In the large photo-engraving color plants, where they use panchromatic plates all the time, they have timers which are nothing more or less than alarm clocks which can be set for three or four minutes and are very handy.

The time to develop panchromatic plates also changes with different emulsions, but I find that most operators settle on a certain time ascertained by experience, and which will fit their formula. I develop them from four to four and one-half minutes, using pyro developer with a little more water than the Wratten formula calls for—otherwise exactly like the formula.

The Wratten plate is a backed plate and consequently will have to be rocked all the time in the developer or the backing will settle on the plate and cause streaks, and the backing should be washed off before the plate is put into the fixing bath or it will soon get the fixing bath too dirty for regular use.

Panchromatic plates all have more or less of a black edge around them which, under ordinary circumstances, would be taken for old plates, so there is no need to worry if you see a black edge around them, but you have to allow for that and cannot figure on using up to the limit of the size of the plate. These plates also come wrapped in black paper and, in the case of backed panchromatics, come packed face to face. In opening panchromatic plates and taking the black paper off of a pair of plates, that black paper should be thrown away and not wrapped around the remaining plate or you will have a streak across your negative, which will mean a make-over.

Figure 58 is a photograph of two cans for popular brands of tobacco and a Wratten color chart. This exposure was made on commercial film, 1½ minutes exposure, *f*32. The red can is here shown black and you have practically no values in red, yellow-green and green, but blue-green, blue and violet are light. In other words, it is a color blind film.

Figure 59 is the same set-up made with commercial ortho film, K2 filter, same stop, eight minutes exposure. We are still short on the reds, but have a good correction in the yellow, yellow-green, blue-green, blue and violet. You will notice from this that this particular film is not sensitive to red to any marked degree, but is very good for set-ups where there are no greens or deep reds. The multiplying factor for commercial ortho film and K2 filter is about fifteen times, that is, behind a K2 filter commercial ortho film requires fifteen times as much exposure as it does with no filter, which is the only drawback I can see to this film.

Figure 60 is the same set-up made with Wratten panchromatic plate, no filter, the same stop, exposure 30 seconds.

As can be seen from the chart, we have a fairly good separation even with no filter. The deep red in the Prince Albert can is still short, but, nevertheless, shows the advantage of this plate even without a filter, in that it can be used many times for interiors and set-ups in the studio without a filter and yet get fairly good separation without prolonged exposure.

Figure 61 is made on a Wratten plate, K3 filter, same stop, exposure four minutes. This gives what the commercial photographer would call full correction.

Figure 62 is made with the "B," the green filter, exposure five minutes, same stop. The Tuxedo can with that exposure is still a little dark, but by a prolonged exposure, it could be made light.

For those who wish to go into this subject deeper, for the theory, I can recommend the following books:

"The Photography of Colored Objects," by Dr. C. E. Kenneth Mees.

"Color Plates and Filters for Commercial Photography," Eastman Kodak Company.

"Dry Plates and Filters for Trichromatic Work," G. Cramer Dry Plate Co.

"The Photographing of Color Contrasts," G. Cramer Dry Plate Co.

CHAPTER XX

COPYING

THE making of good copies is considered by many to be the most difficult branch of commercial photography and forms a large portion of the work, yet it is the custom, in some studios, to turn the copying over to apprentice boys and cheap help. This means, as a general rule, that the copies are stuck up in a careless manner, no real attention paid to exposure, lighting, and other important details with consequent indifferent results.

Good copies are hard to obtain and the best operator, apparatus and materials possible should be employed. The reason is that no matter how much latitude the plate or film may have, the exposure has to be absolutely correct—not a little over nor a little under, but correct. This is necessary if you are going to preserve the gradations in the copy print that are found in the original.

While it is true that, with the four degrees of contrast in paper, one may obtain a print from almost any negative, it will not be a true copy in every sense of the word if the exposure of the copy negative is "off." That, of course, applies to good originals.

There are many occasions, such as in copying old documents, pictures that are soiled or naturally a little flat, when it is desirable to add a little contrast and, at other times, equally desirable to get a little softer result, but the copies the commercial photographer is the more often called upon to make are those where a true copy, both as to contrast and gradations, are wanted.

The kind of light to use in making copies is somewhat important. In shops where copies are a major portion of the work, it is the custom to copy entirely by artificial light in some form or other and is by far the best and easiest method to pursue. With daylight, the conditions are constantly changing every hour and every day and you will be troubled by reflections, so it resolves itself right down to artificial light for real results. Some operators use arc lamps, one placed on each side of the copy board, and which are all right with the exception that they take considerable current, thus entailing too much expense. Others use mercury tubes placed upright, one on each side of the board, and while the first cost is considerable, the amount of current consumed is negligible.

Illustration, No. 63, shows an apparatus which is very handy for lighting small copies. It can either be worked with incandescent gas mantles or electric bulbs, and gives good results, while clear bulbs of the Mazda or Nitrogen type of 500, 750 or 1,000 watts, on stands on each side of the camera, make a very effective way of handling various sizes of copy.

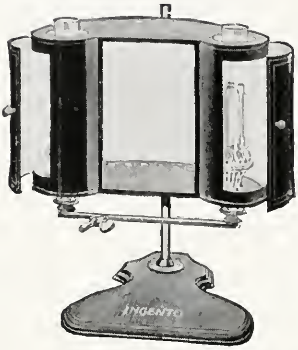


Fig. 63

Illustration, No. 64, represents a type found in some studios and known as a "circle light." This is exceptionally convenient, as the light is all around the copy—a big factor in copying drawings or other copy that is patched, as there are no shadows from the lights and absolutely even illumination is obtained easily.

However, if one uses daylight for copying, it is always well to have a black screen directly in back of the camera, if possible, to do away with reflections. This applies more particularly to copy such as oil paintings or copy placed under glass. Some operators, in copying oil paintings by daylight in museums and art galleries, where they have mostly top light, place a black screen directly in front of the painting to be copied with an opening just large enough to accommodate the lens. In that way, reflections are cut down to a minimum.

If artificial light is used in copying, in the ways mentioned hereinbefore, there will be little trouble with grain, but if there is trouble despite the artificial light, it can always be eliminated, even in the worst cases, by copying under glass and making, for instance, a half reduction of the original and then, for the finished print, enlarge it up.

The kind of plates to use will be governed, of course, a good deal by the original to be copied. For instance, a black and white line copy should be photographed on a process plate or film and should *never* be photographed on a single coated plate without backing, as halation is just as bad here and destroys just

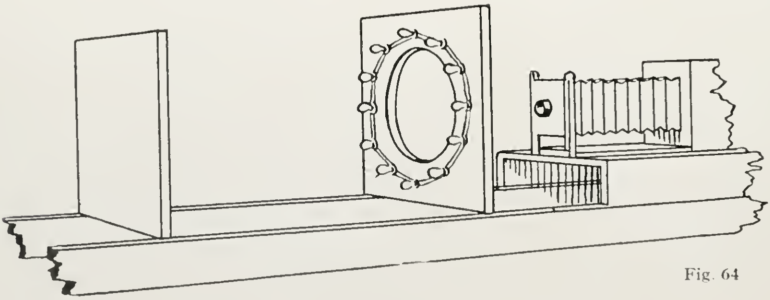


Fig. 64

as many negatives as it does on the most trying interiors. Prints that have a good many dark and middle tones and very little white can be copied on a single-coated plate, but they would be better on a film or a double-coated plate, at that. When operators complain that they cannot get good copies, nine out of ten times that is the reason. They are getting halation, only it is a little different form from that to which they have been accustomed.

It is the habit of some to use a double-coated plate like the Standard Orthonon on practically all copies. That is wrong for the best results. While the Standard Orthonon plate is a little bit harder in contrast, for instance, than a portrait film, it is a little soft working in contrast for most copies. A Commercial or Commercial Ortho film, Cramer's Medium Iso or Hammer's medium speed of plates will give better results but, of course, as above mentioned, if you use single-coated plates they should always be backed, whereas, with a film this is not necessary.

The lens to use should preferably be an anastigmat of good make, although a rectilinear will do very well when stopped down.

I suppose it is hardly necessary to mention here that the copy board, lens and ground-glass should all be exactly parallel.

There are several things that cause trouble in copying. I will take up a few of them and give a few points in that connection.

The first is sepia prints. A sepia print, copied in the ordinary way, is a disappointment. For really good results, use a panchromatic plate with a red contrast filter and, while that increases your time a lot, the results leave nothing to be desired.

With blue prints, which the commercial photographer is often requested by architects, engineers, etc., to photograph for reproduction, the best results are obtained by using a red contrast filter and a panchromatic plate. However, fairly good results can be secured by using a yellow sensitive plate and the "G" yellow contrast filter.

Then, again, you will get pencil sketches on rough paper. They can best be handled under glass, using a process plate or film and a very light filter such as the K1 of the Wratten series.

There is another job of copying occasionally coming up, and that is copying from a book, the paper stock of which is known as India paper, very thin, and where the printing on the opposite side of the page shows through. By putting a piece of black paper in back of it and photographing with a process plate or film, giving just the right exposure, you can lose the print on the other side.

Still another job often encountered is where it is necessary to patch originals for copies and, at the same time, return the original in good condition and without the patch. A little stunt comes in handy here, and that is, to use rubber cement—just the common tube variety used in mending auto or bicycle tires. Rub it lightly on the patch, as well as on the surface where the patch is to be placed, letting it dry down some, then put the patch in position and roll it down. When through copying lift off the patch and if some of the cement clings to the original, it can be cleaned off with gasoline or benzine.

CHAPTER XXI

ENLARGING

THE commercial studio is called upon to make enlargements, oftentimes in quantities, wherein the quality has to be above reproach and yet speed is a factor. Therefore, the best equipment obtainable and conveniently arranged, is a mighty good investment.

Here, as in copying, different lighting systems may be employed, but an arc lamp with condensors is by far the speediest equipment we now have. Just how speedy this is depends upon the power of the lamp. There are some in use so speedy that you can make an enlargement on carbon green developing paper in 10 to 15 seconds. Those of you who have used carbon green paper know what that means, but it is not generally necessary to have as speedy an outfit as that.

Figure 65 shows an arc lamp with reflecting cone—an arrangement in use a good deal, as it is fairly fast and allows the use of 11 x 14 negatives, as well as 8 x 10 and smaller, without the expense of large condensers.

Figure 66 represents an outfit that is coming to the front pretty lively, and that is the Cooper Hewitt mercury tube (M). This outfit is very good, indeed, for 8 x 10 and under, and is quite speedy and very economical on current. In enlarging from 11 x 14 negatives though, the H type of tube, that is, two vertical tubes side by side, must be used as the M type does not cover larger than 8 x 10.

The Mazda lamps and multi-mirror reflectors are also used, but for most commercial work they are really too slow.

With any of these lighting systems, it is far preferable to have the light on the outside of the dark-room, for it is then easier to have a light-tight outfit. Especially is this an urgent need when making large negatives from small transparencies.

I have often noticed photographers working with a make-shift lighting apparatus for their enlarging. Lamps covered up with oil cloth, cloths, cardboard, etc. This is not only dangerous, but extremely detrimental to the quality of the finished product, extraneous light hitting the paper during exposure.

Figure 67 shows a very handy and convenient enlarging camera—the revolving back F. & S. enlarging camera. This revolving back feature is really quite a saving in time, as it enables one to put the paper on to the board or into a frame and then turn the image to fit it. I think that is the one big feature that recommends this apparatus.

If you are in a building where there is vibration and are making fairly big

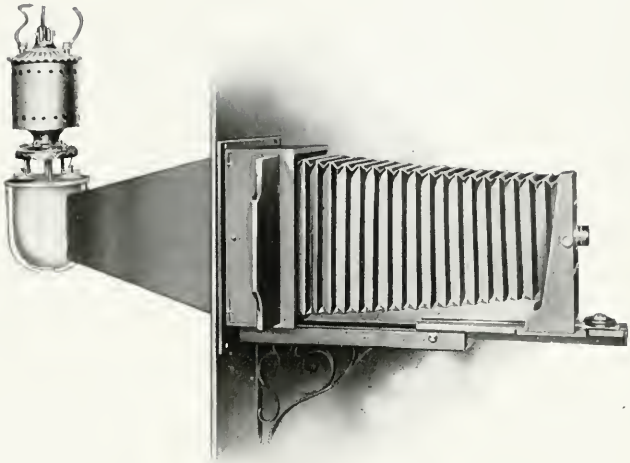


Fig 65

enlargements, you will notice a considerable improvement if the entire enlarging outfit is constructed on a heavy frame-work and the whole suspended from the ceiling by springs. This vibration is one of the greatest difficulties photographers have to overcome, especially those in downtown buildings which also house printing plants and other concerns operating big presses, as the vibration of the building makes it practically impossible to get sharp, clear-cut enlargements. The expense in this connection, which is very nominal, will be easily offset by the improvement in quality of work and the elimination of waste.

In certain of the large studios, where a lot of enlargements are made—and speedy—they use a large printing frame mounted on hinges to hold the paper during exposure, and the lens safety cap is generally on a hinge also, but, for the ordinary place, the large easel, with room for extensions in both directions, does very well, but be sure to have plenty of room, as a 40 x 60 enlargement is nothing unusual for the commercial man. Just a little point here. Sometimes, in cramped quarters, it is practically impossible to develop 40 x 60 and similar sizes of enlargements in trays. They can be developed directly on the board after exposure, or they can be developed on tables or on the floor, of course, using oil cloth underneath, and soaking them up first with water, then applying the developer followed by a short stop. This method effects a big saving in developer as it can be swabbed on with a piece of cotton, although the enlargement must be timed just right so as not to develop too rapidly.

The kind of paper to use varies, of course, with local demands, but the average commercial studio is making enlargements for reproduction, when the xx.P.M.C., No. 4 (glossy) is considerably used while the P.M.C., No. 5 (matte surface) makes a very nice paper for photo-retouchers and artists to work upon. These two papers are probably the most used, but Monox also is in demand as

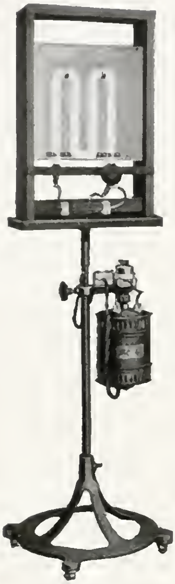


Fig. 66

are also the enlarging Chloride papers such as Cyko enlarging and Artura Carbon Black.

The making of good bromide enlargements is really an art by itself. Several years ago I came on to a man who was really a genius in this line and who showed me its possibilities. I think the one best tip that can be given on enlarging is not to over-expose, keeping in mind that, with bromide paper, the image does not appear as rapidly as with chloride paper and the result of over-exposure is a poor gray and greenish black, one of the complaints we have heard of bromides for years. But with the proper exposure and developed to the limit, you will get brilliancy and nice blacks, with plenty of control.

Just a word about negatives. Negatives for enlargement should be not too dense, but rather brilliant, or a little snappy, but not contrasty. If they are copy negatives, still more care must be used. For instance, a negative that would make a good print on Azo Hard Medium, the chances are, will make a good enlargement.

As to developers. Amidol developer, to my mind, is really the one best developer for commercial enlarging, as it gives better blacks and cleaner whites. I never cared to use a metol or metol-hydrochinone developer for enlargements.

These modern metol substitutes give some nice enlargements, especially Fredol, when diluted.

I have gotten excellent results from Fredol under the following formula.

STOCK SOLUTION.

Water	256 oz.
Fredol	1¾ oz.
Sulphite soda (dry)	8 oz.
Hydrochinone	2 oz.
Carbonate soda (dry)	8 oz.

One drop saturated solution bromide to each ounce stock used. Proportions, three parts water to one part stock.

To the above formula I add a few more drops of saturated solution of bromide than called for and it certainly gives beautiful enlargements on P.M.C. paper and Royal Bromide, but the image should not appear for 1½ to 2 minutes for really good enlargements and development should be carried to the limit.

A discouraging factor in working certain brands of paper in the summer time is that of blisters. There are so many causes for blisters and they have been described in other places, that I am only going to touch upon one point that I know has helped quite a few people, and that is to use as a preservative metabisulphite or bisulphite in the fixing bath.

There are times when you are asked to mount big enlargements. There seems to be no mounting board large enough, so these enlargements are often

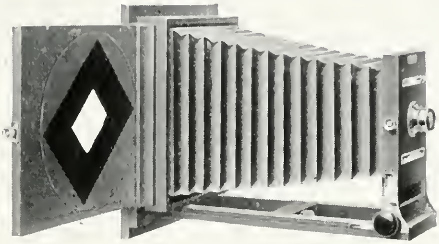


Fig. 67

mounted directly on to compoboard or beaver board, which solves the problem very nicely—it is not heavy, yet it holds its shape.

At other times, you are asked to mount them on cloth on what are known as stretchers for artists. The correct procedure on a job of this kind is to tack muslin on to the stretcher, beginning at the middle of either end and the middle of either side and then work towards the corners until it is absolutely smooth and taut in all directions. When this is done, take a sponge fairly wet and quickly wet the cloth, rubbing it in both directions and get it wet evenly. Let it dry a little, then apply your paste, and then the pasted enlargement, bringing both in contact by rubbing with a sponge or piece of cotton. If this is done as above, the enlargement will neither buckle nor cockle.

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CHAPTER XXII

DARK-ROOM WORK

THE developing and manipulation of negatives for commercial work is far different from that required for portrait work and therefore cannot be handled in the same manner. Commercial customers demand detail, snap and brilliancy in prints—the portrait man is looking for softness, and with most of them, lack of detail.

While it is true that we do not make a business of selling negatives and it is really the print that we sell, nevertheless, the better the negative the easier it is to make a dandy print. Often an operator will say "Oh, well, I can get a print off of that"—possibly it can be done, but it takes time, wastes paper and all in all, it is poor business. If the operator will use a little brains in making his exposure, a little care in developing, there is very little excuse for a poor negative.

First of all, a good dark-room is a real necessity. While one can work in cramped, crowded, unventilated quarters—and the commercial man frequently has to do this under certain conditions while on the road—the studio dark-room should be arranged conveniently, and above all, be well ventilated if the best efforts of the dark-room man are to be called forth. Such a dark-room, with ventilating system, is shown in Figure 68, a pen sketch. You will notice the small grating at the lower left hand corner, which is the inlet for air, with an outlet at the upper part, which is nothing more nor less than a large galvanized iron tube bent over to prevent the light shooting back into the dark-room. An electric fan of about the 16-inch size is set in front of this tube, which draws the old air out through the tube and the fresh air coming in through the light-locked inlet down near the floor. Of course, care must be used in placing these two so that the course of the draft will not be over one's head while working at the sinks, or an everlasting cold would be the result.

There should be no other inlet or outlet open in the dark-room when the fan is on, except the floor ventilator—otherwise this system will not be effective, and the floor ventilator should be just a little bit smaller than the outlet.

It has been the writer's good fortune to have been engaged, several times, on experiments for large companies in ventilating big dark-rooms, and this is one system that really works. There are numerous others that work sometimes.

Another important item shown in this sketch is the indirect lighting system. This is an eaves trough, such as can be purchased at any tinners, with four electric bulbs, two red and two white, throwing the light up against the ceiling. With the red lights turned on, it makes a mighty nice room to work in, of course, having the side wall red lights for developing, while the white lights can be switched on and the red off. Where more than one man is working in a

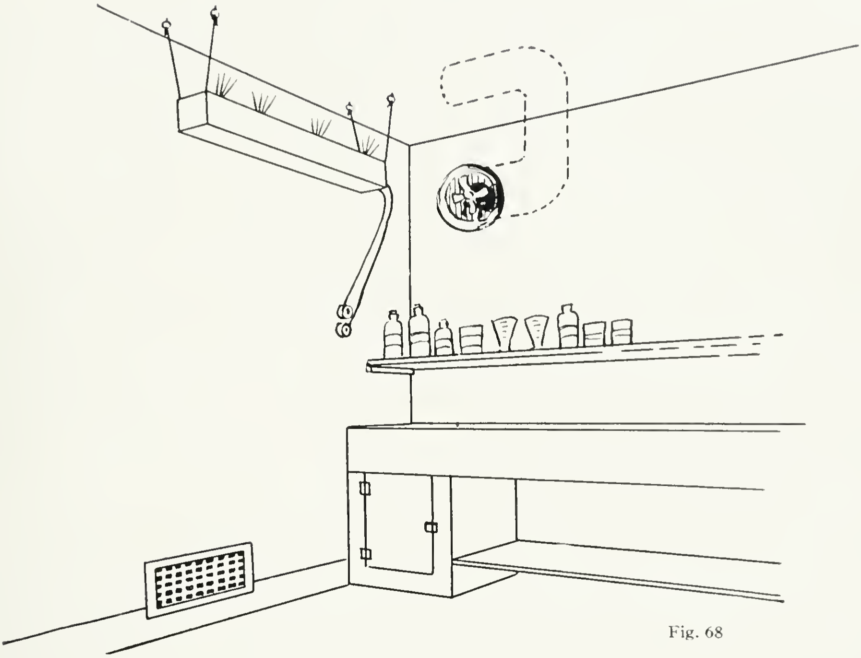


Fig. 68

dark-room, it is good custom for the foreman only to have the master key that will turn on the white lights and which will prevent many a catastrophe. Also, under such conditions, about one of the best arrangements is the S-shaped entrance to a dark-room. However, these have to be carefully planned or they are the source of many a poor negative. While light does not travel around corners, it reflects around them, and I have been in dark-rooms, using a similar entrance, which I knew were not safe. At least two turns should be made, but three is better.

We have long been accustomed to seeing the inside of a dark-room painted black, which is unnecessary. Many of the modern and up-to-date dark-rooms are painted red or orange, which, with the indirect lighting system mentioned, makes a very effective combination. Another really good stunt, especially in dark-rooms constantly in use and where there are possibilities of hypo and water being spilled on the floor, is to use a floor oil on the floor, applying it with a mop every few months, as it absolutely prevents dust and hypo from flying around.

A very important part of the equipment of a dark-room is the sink or sinks. I believe I have worked, in my time, with practically every kind of sink I have ever heard of and I like the wooden sink best of all. There are porcelain, cement, slate, soapstone, lead lined sinks, and wooden sinks lined with paraffine or marine glue, but, as above mentioned, you have trouble with all of them, and the plain Louisiana cypress sink, California redwood, or even white pine, with absolutely no paint on them, give the best results in the long run, with less trouble and expense. Of course, they should not be allowed to dry out.

As the commercial man is generally working for some special result and nearly always has to control development to a certain extent, I think pyro is by far the best developer for all-round commercial photography. While there are operators who get very nice results with different coal-tar developers, they are generally those who are working on some one line all the time, have their exposure right down to a nicety and their lighting always under full control, but, for the average commercial man, who is meeting any and all conditions, I believe you will find more of them using pyro than almost any other developer and with the straight old A-B-C formula. For my work I use less water than the formula calls for, but I believe I time longer than most operators under the same conditions, and thus arrive at about the same result. As to the advisability of using tank development, it is very good for long runs of negatives, such as furniture, stoves and similar lines, but for the average studio work, development seems best handled by tray. Likewise, most panchromatics are developed in tray, excepting those for long runs.

Many people believe that if they had some one formula, the key to success would be theirs. Such is not the case. It is experience with a little brains, mostly brains, that really helps to make success in developing, and to know your product and balance your chemicals to suit it, taking into consideration your water conditions. I have made negatives in various parts of the country under any and all conditions and have used practically nothing else but pyro developer, almost identical with the formula published, varying my amount of carbonate and sulphite to meet local conditions.

For a stock solution of developer, I have used the following for a number of years on different occasions and like it very much:

Water	200 oz.
Metol, Elon, etc.	1 oz.
Hydrochinone	4 oz.
Pyro	4 oz.
Sulphite soda (dry)	49 oz.
Carbonate soda (dry)	26 oz.
Bromide potash	½ oz.

For tank, dilute with 42 gallons of water; 20-minute development at 65°.

For tray, dilute 1 to 12 or more, according to speed wanted.

In a tank this bath will last two weeks. After one week, add one-half quantity of above stock.

PROCESS DEVELOPER.

No. 1.

Hydrochinone	1 oz.
Potassium metabisulphite	1 oz.
Bromide potash	1 oz.
Water	40 oz.

No. 2.

Caustic potash	2 oz.
Water	40 oz.

Use equal parts. Shake well before using and rock tray in both directions during development.

There are times when you will need intensification or reduction, sometimes both on the same plate. The kind of reducer to use will be governed somewhat by the kind of negative you have. If your negative is harsh in the high-lights, but fairly good in the shadows, a reducer like the following will be just about what you will want and is known among the commercial photographers as "high-light" reducer:

No. 1—Saturated solution of Potassium Permanganate.
No. 2—Sulphuric Acid, C.P.

Take about one dram of No. 1 and six or seven drops of No. 2, to ten to twelve ounces of water and you have a pretty nice reducer for that kind of a negative. To use it, the plate should be thoroughly washed first and it is always well to try the reducer on the extreme edge first to get the speed of it on that particular plate. It can be used locally or all over. The way most of the workers use this reducer is to immerse the negative in it, rocking the tray a few times, take the negative out and immediately transfer it to a tray of running water, sousing it up and down a few times. If not reduced enough, repeat, if it is not going fast enough, add more of your stock, and if it is going too fast, put more water in it. After the negative is reduced enough, it should be put in the hypo bath. The idea of using the running water is to remove the reducer as quickly as possible, as it oxidizes rapidly and will stain the negative if not washed off quickly. Of course, the reduction can be done locally by applying the reducer with a piece of cotton.

This reducer is used probably more than any other formula and it does not reduce the shadows to any perceptible degree and is a mighty nice, quick and clean working reducer.

Sometimes, under certain conditions, a yellow stain will appear when using this reducer, but by placing it back in the hypo, it should disappear. If not, a weak solution of oxalic acid will remove it.

If by some accident you have developed your negative too much all over, or possibly you may purposely have done it, the negative can be reduced very nicely by what is known as Farmer's reducer, which reduces all over. Of course, your shadows being thinner, reduce faster than the high-lights. This reducer is made by making (No. 1) a saturated solution of Potassium Ferricyanide (keep in a dark bottle, as light affects it) and (No. 2) a saturated solution of hypo. Use about a dram of No. 1 and a dram of No. 2 with four to eight ounces of water, according to the speed you want. Immerse negative all over, or it can be handled locally the same as the other. After the negative is reduced enough, it should be washed under a tap and placed in the fixing bath for a while.

For intensifying, the following is one of the most satisfactory and extensively used formulæ. It is a very old formula and has been used practically as long as dry plates have been on the market.

1¼ oz. Potassium Iodide.
12 oz. Water.

To this add saturated solution of bichloride of mercury until it will not take up any more. As you add the bichloride of mercury to the iodide solution, it will turn red, a sort of salmon color and will almost immediately clear up.

Keep on adding the saturated solution of bichloride of mercury until it stays red, or in other words clears up very slowly. When it does clear up, add enough water to bring it up to 20 ounces and add 1 ounce of hypo crystals. This intensifier can be applied locally or all over and has the advantage of putting a little color into your negative and can be used repeatedly until exhausted. Of course, your negative should be washed thoroughly before using. If you want to take the intensification out, all that is needed is to soak the negative in water and then put it into the fixing bath and it will be removed.

Another method of negative intensification, especially for a stronger result, is to use mercury and ammonia. That is, to bleach your washed negative out in a saturated solution of bichloride of mercury, wash and then immerse in a solution of ammonia, about half an ounce of ammonia to 20 ounces of water. This is a very strong intensifier and is very seldom used except for line copies and the like.

If a less strong intensification is desired, it can be bleached out and then blackened with a solution of sulphite of soda.

Occasionally there are negatives where the high-lights are too strong or harsh and yet the shadows need intensification. In such a case, one way to accomplish this is as follows: Bleach out with a saturated solution of bichloride of mercury and then, after washing thoroughly, touch the spots that are too harsh with a very weak solution of plain hypo on a piece of cotton and they will be reduced, but the hypo must be very weak, as its action is quite fast. After the high-lights have been reduced sufficiently, the bleached negative can be blackened to its original state by one of many methods. It can be placed in a weak solution of sulphite of soda, sulphide of soda, or ammonia, according to the amount of density that is wanted.

With a little intelligent practice, almost any kind of result can be accomplished. In fact, I do not think there is any limit to what can be done to a negative in the hands of a clever workman. A ground-glass, with a light under it, placed in a horizontal position to light negatives during intensification and reduction, is very helpful and makes a very convenient arrangement.

Again, there are times when but one small portion of a negative either has to be intensified or reduced, and especially in the case of reduction, the reducer is apt to get on to another portion of the negative where it is not wanted. One way to get around that is to proceed as follows: Take a clean blotter and dry your negative (or a clean towel will do the same thing) and then apply your reducer with a piece of cotton, pulled out to a fine point, in the center of the spot that is to be reduced. The reducer does not spread so rapidly on a plate that has been blotted or dried off and is thus more easily controlled. Some operators use an ear syringe, applying a strong intensifier or reducer with a thin film of water running over the plate at the same time. The thin stream of water going over the plate keeps the reducer or intensifier from causing a little ring around the spot being reduced.

Hot weather brings on its share of trouble, especially with double-coated plates, where the emulsion will become quite soft despite ice in the washing water, etc. There is also some trouble with films, they being coated on both sides. One way to remedy this is the method used by the pioneer dry plate workers in the old days, when plates were always soft. As the negative comes from the tray or tank after developing, rinse it off as usual and then immerse in about a 5 per cent solution of chrome alum for a second or so, transfer immediately to the fixing bath and then, unless your fixing bath is terribly old or very warm, your negatives or films will be almost hard enough to skate on.

Then, in the winter time, especially when using tanks or large trays of developer, there is difficulty in holding up the temperature. There is an electric iron on the market used for heating shaving water and the like, which is a very convenient attachment to have, as it will raise the temperature to any desired point with little trouble and one is very well repaid by such an investment.

The drying of negatives is also very important, if their quality is to be preserved. It is the habit of some dark-room men to dry their negatives in the dark-room. A far better plan, to my mind, is to have a place on the outside of the dark-room that is up off the floor and away from dirt, and the possibility of dirt flying on to them and away from the dampness of the dark-room.

Where several operators use the same dark-room and the same plate holders, especially when several different kinds of plates and films are employed, there is always the possibility of a plate holder lying around and nobody knows whether a panchromatic, Orthonon double-coated, or single-coated, or what kind of a plate is in the holder. A convenient way is to mark the holders with a grease pencil, such as is used to write on glass, specifying the kind of plate or film in the particular holder. Many of the large studios require their operators to return all unused plates or films to the proper boxes every night, which is a good plan, and if this method is employed liability of a mix-up is avoided.

In using pyro for developer, we all get our fingers stained, and many young fellows, going out among the ladies, and those of us who labor in "high brow" studios, have to remove the stain from our fingers. There are several methods of doing this. If the stain is not very bad and it has not been on very long, by immersing the fingers in the permanganate of potash reducer mentioned above, and seeing that the nails get plenty of it on, washing them a little bit, and then dipping them in the fixing bath a few moments, the stain will come off. If that does not work, wet your hands thoroughly with warm water to get them softened up, and apply a saturated solution of potassium permanganate to all of the stained parts; wash them a little, and then bleach them out in a saturated solution of potassium metabisulphite. This will remove fairly obstinate pyro stains.

If the stains still stay with you, proceed to put more saturated solution of potassium permanganate on the finger nails, immerse in a mixture made of two or three drams of hydrochloric acid (Muriatic) and about eight ounces of water, to which is added four or five crystals of hypo.

This makes a kind of emulsion or soapy looking substance, but will remove the stains from your hands. I suppose if you left them in long enough, it would remove the hands too, as it is a little hard on the hands.

CHAPTER XXIII

BLOCKING, STAINING AND LETTERING

IT has long been the custom, with the large portion of negatives made for commercial work, to block these negatives, that is, paint out or opaque them so as to render the background pure white in the finished print, but the tendency now, in high-class studios, is to do away with blocking as much as possible.

However, blocking of negatives will be in demand for some time to come, and there are many photographers who have considerable difficulty in doing this work. The principal trouble has been possibly that they did not have the proper equipment. For success in blocking, it is quite necessary to have a good ruling pen, a transparent triangle and an irregular curve and a good lettering pen, all of which articles can be bought under these names at almost any artist's supply store, and a few good brushes, which most photographers generally have on hand, anyhow.

A word about this ruling pen—a cheap ruling pen is an abomination—therefore, the best that you can find will be found the cheapest in the long run. Keep it clean at all times, and occasionally apply a drop of good oil to the set screw on the side. A little care will be amply rewarded. A good brand of pen for lettering is Gillott's, No. 303.

A satisfactory opaque, to buy it ready prepared, is expensive, but probably it also is the cheapest in the end, for I notice a good many of the large commercial studios buy their opaque prepared. There are several good brands on the market, Victor, Alvord's and Eastman's being possibly the best. If you prefer to make your own opaque, the following is a good formula.

Procure a small jar of Indian Red (ground in water)—Heath and Milligan's is good. To the Indian Red, first add a little water and after thoroughly stirring, add a little dextrine solution, which is made by taking about two ounces of powdered dextrine (obtainable at a drug store) and heating it in a double boiler with eight to ten ounces of water, until it is thoroughly dissolved. When dissolved, add a few drops of oil of cloves, carbolic acid or any similar preservative, and store away in a tightly corked bottle. Add enough of this solution of dextrine to the Indian Red to make it spread nicely. Try it out on a piece of glass with a brush and if it does not spread well, add a tablespoonful of common table syrup, such as Karo. With a little experimenting, back and forth, you can get this opaque very smooth and as it dries very quickly, is a really good opaque, although it does not keep quite as well as the prepared opaque.

Another opaque used considerably on films is made as follows: To drop black (ground in Japan drier) add turpentine until it is the proper consistency This makes a somewhat more expensive opaque than the first formula, but because of the absence of water, is the much more satisfactory opaque for the films, as the films will not cockle.

Still another formula which is much used by particular and careful workmen on small things, especially those who apply opaque on the negative with a brush, is to take Windsor & Newton's oil color lampblack and dilute with turpentine and apply directly on the negative with a brush, as this kind of opaque does not flow very freely from a ruling pen.

About the next requisite in this work is a good blocking stand. There are several different kinds used by the commercial workers. Some seem to prefer the horizontal type which is nothing more, usually, than a big plate box with a sheet of ground-glass set over the top with an electric light in the bottom of the box. The negative is put on this ground-glass and blocked in a horizontal position. Those who use a brush exclusively seem to prefer this position, as more light is thrown onto the negative from the workers' side.

Others use a nearly upright stand, with electric light in the back and which, to me, is far the better position. A good light for either type of stand is a 75 or 100-watt blue bulb placed back of a sheet of flashed opal glass and gives really ideal conditions.

To proceed to block a plate negative, go around the outline of the object with the ruling pen for the straight sides, using the transparent triangle, and

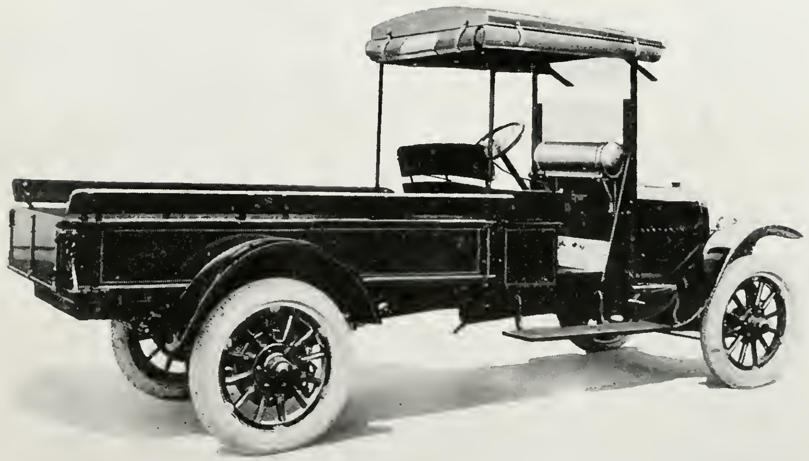


Fig. 69

for the curved spaces the irregular curve, while, for intricate places, use either a pen or a small brush.

Sounds easy, and I think really is easy and I cannot understand why some people have such hard times doing this, as it ordinarily is a kid's job. After the outline is completed, fill in the rest of the plate, using a heavier brush. Some shops fill in an inch or two of the negative with opaque and then use post-office paper masks for the rest of it, but as the mask gets torn off and somebody possibly has to make a new one about every time an order is printed, it would seem cheaper to opaque clear to the edge in the first place.

Opaquing film presents a few difficulties, among which are cockling of the film and slipping and sliding of the film on the blocking stand. The way to overcome these is to bind your film negative on to a sheet of clear glass, same size, and then proceed as with a plate, and eliminate the cockling, as mentioned above, by using turpentine instead of water in the opaque.

When the opaque crawls and refuses to go on evenly—caused usually by grease on the negative, this can be overcome by rubbing the place with a cloth or piece of cotton moistened with saliva or alcohol.

Illustration No. 69 is a blocked job of a motor truck. The point I wish to bring out by this illustration is the blocking of the ground, of which this is a good example, and which was done by simply following the shadow of the truck on the ground.

STAINING

No matter how careful the operator may be in making the original negative and probably has done all he could in intensifying and reducing, there will be cases of negatives that are too thin in some one place or maybe several small places. This is something that frequently occurs and creates quite a little trouble in the printing-room. The time to correct it is on the negative before it goes to the printing-room and is usually done by what is known as staining, which, in this case, means to apply a stain of some kind or other to the weak portion of the negative. A good stain to use is what is known as Velox water colors. These can be purchased at any photo supply store and are used ordinarily for coloring amateur prints. The two colors most used by commercial photographers for staining are brilliant red and light yellow. There is another color used considerably, known as turkey red, a dye obtainable at the drug stores. The brilliant and turkey reds are used to hold back extra thin places and the light yellow to hold back the medium places.

The method of applying these colors is to make a weak solution of the desired color and then moisten that portion of the negative to which the stain is to be applied with a little saliva. Then go over it with the color on a brush, and as soon as the color is applied all over, blot it off with a clean, dry blotter, and, if more density of color is needed, apply another coat. It is better to use several applications of a weak color than one application of a strong color, as you have more control.

While it would seem that the red would be too strong, that is, make the print come white at the point the red is applied, such is not the case if you use the colors mentioned, that is, brilliant or turkey red.

The minute any yellow is added to these colors, you have almost an opaque color as far as printing quality is concerned.

This staining is really a wonderful help and is a very old stunt, used for years among the old-time commercial photographers and is still much used. It, like many other stunts in photography, requires a little practice and dexterity in making the application.

If you get on too much coloring, the negative can be put back in the washing box and the color entirely washed out, if the brands of colors mentioned are used.

LETTERING

Insertion of titles and lettering on negatives is a necessity in commercial work. Almost every print delivered in merchandise work for traveling men's sample books will be numbered or lettered to a more or less degree. There are many different ways of putting this lettering on. If on a white ground, it can be scratched in reverse through the opaque with a sharp point. A good point for this kind of work is what is known as an engraver's needle. However, there is considerable trouble, at times, in preventing this lettering from be-

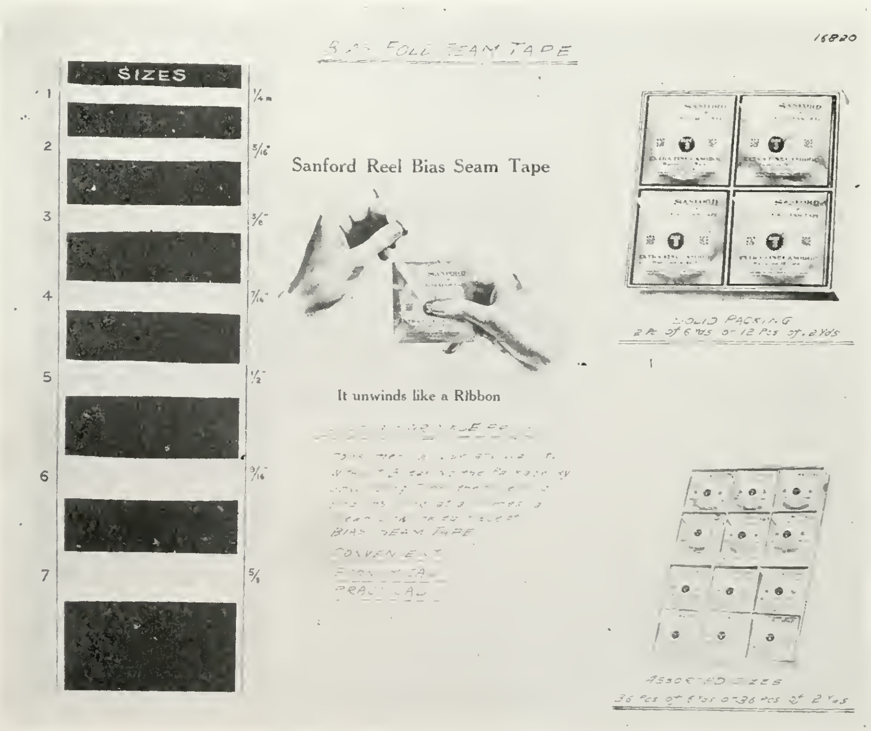


Fig. 70

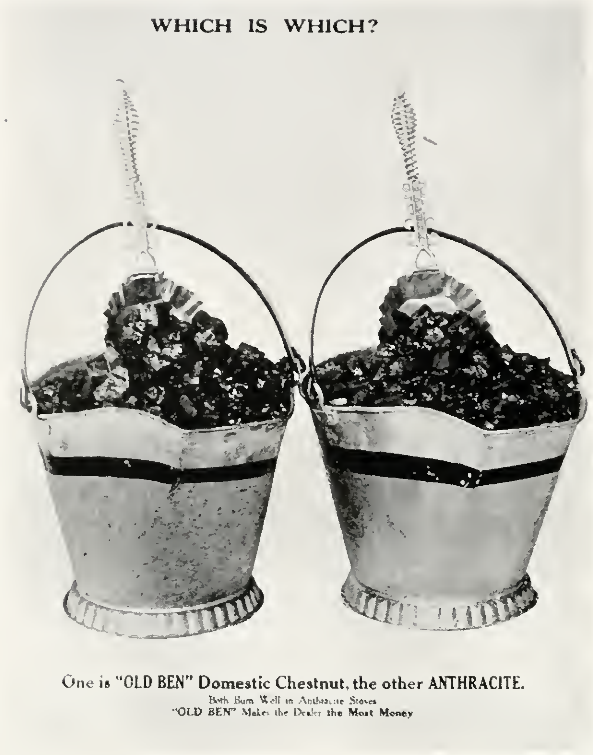

WHICH IS WHICH?
One is "OLD BEN" Domestic Chestnut, the other ANTHRACITE.
Both Burn Well in Anthracite Stoves
"OLD BEN" Makes the Dealer the Most Money

Fig. 71

coming ragged. A far better method is to put it in with a hot point, which, in the simplest form, consists of a 1-16 inch machinist's drill, with the shank end filed off and driven into a piece of wood for a handle, and the drill end ground down to a fine point. Heat this point up hot and letter on the negative. You will be surprised how easy it is. The hot point, in its more elaborate form, is heated with electricity, alcohol or gas, much the same as the old wood-burning outfits so popular a few years ago.

Figure No. 70 is an example of hot point lettering.

Figure No. 71 is an example of inserted printing on an opaque ground. The way this was done was to have a printer set the titles up and make a press proof on a pure white paper. This printing was then photographed with a process film developed with contrasty developer. The film was then cut up and the lettering inserted on the negative. The method of inserting these film strips on the negative is as follows:

Cut up pieces of blotter just a little larger than the titles you wish to insert. Dip the blotter in water and pull it right out and place on the negative where the title is to go on. Go around the edge of the blotter with an etching knife, cutting through the film. Allow the blotter to stay in place for a minute, remove, and then with the etching knife, catch up the edge of the film and pull it off. The title negative may be inserted in the clear space and bound in place with binding strips. This makes a very neat and satisfactory job.

Another method pursued is to make a paper negative in the camera direct from the original copy, using contrasty developing paper. The exposure will be somewhat long, usually five or ten minutes, but oftentimes it has to be done that way. This paper negative, after it is developed, fixed, washed and dried, should be rubbed over with castor oil to make it transparent and then may be inserted on the negative the same as the film strips mentioned above.

Titles may also be double printed in, that is, make the title negative the same as mentioned above by either the film or paper method and attach them to a mask covering the whole plate. Then, by first printing the picture, taking the negative out and replacing it with the mask with the titles in, making a second exposure and developing up, your title will be in. This takes rather longer to accomplish, but makes a neat job.

The simplest and the best way when you have long titles or descriptive matter is to have a printer set up type, using a light face, and print the inscriptions exactly where required on a piece of film support, using a printing ink used for printing on celluloid and then bronzing it to give greater density. This is the method used by the paper makers to title sample prints. Of course, the printed title and the negative are placed face to face and printed at one time. In enlarging, the printing will show much better than as if done by hand.

Inserting titles on black grounds is far easier. They can be lettered in directly on to the negative, using India ink and a pen, lettering in reverse, or you can use opaque, which is really better. If you have trouble in lettering reverse, procure some film support from your stockhouse, the same size as the negative you wish to title and letter on it. Then reverse and attach it to your negative and print through the two of them.

A lot of attention should be given to titles, as they are important, if you wish to help the customer sell his goods, as many an otherwise excellent photograph is spoiled in appearance by untidy lettering.

CHAPTER XXIV

PRINTING

THE printing-room of a commercial studio is by far the most important part of the entire outfit—important in that it is the department from which comes the finished product for the customer and is considered by many of the leaders as the most profitable department of the business, and, for that reason, should be thoroughly and properly equipped with good ventilation and the best possible apparatus, as well as laid out conveniently for heavy work.

There has been, from the time the photographic business first started, more or less friction between the operating and printing departments, the operator blaming the printer for not turning out good prints and the printer blaming the operator for not sending in good negatives, all of which should be done away with, as it is up to all concerned to help in turning out the best possible prints and make money for yourself, if you are in business, or make money for your employer if you are working for others, and which cannot be accomplished if there is continual dissension.

The main consideration in the printing-room is the printing machine. There are about as many different kinds of printing machines as there are studios. Each and every commercial photographer having his some one idea as to the best printing machine; about the only quality agreed on by all of them being that there must be absolute control of the light. Faking and dodging must be easy and fairly fast and absolute contact must be had. About as good a machine as there is now on the market is the Folmer & Schwing professional printer, Figure No. 72, most commercial photographers using the No. 2, although as above mentioned, many make their own machines.

Just a word about the kind of prints wanted in the commercial line. Portrait photographers' prints are considered good when they tend just a little bit toward the olive, warm browns and some of them make a lot of sepias. A commercial print, to reproduce well and to match up with commercial prints from other parts of the country which the customer may have, should never be green or olive, but a pure black and white, what some of you may call a cold blue-black, and should have detail all through, be snappy and brilliant, but not harsh or contrasty, and, for most cases, will be wanted on glossy paper. The reason so much commercial stuff is on glossy paper is that a glossy print shows more detail and when it is wanted for reproduction purposes, there is no liability of picking up the grain of the paper.

But, of late years, many of the commercial studios, especially those making prints for salesmen's sample books, are using more and more papers like Azo E, double-weight and other semi-matt and semi-gloss papers, as they do away with the one big bugaboo of the commercial plant, squeegeeing and mounting on muslin.

For outside work, many of the better studios today are using sepia prints with tinted in borders, very much the same as the high-grade portrait men are using—also, there is a great deal of carbon green being used for prints from negatives of out-door scenery.

It is just as well to get away from glossy prints where others are permissible and you can do it at a profit, for it makes the work turned out from your studio more distinctive than where everything is done on glossy paper.

The commercial printer of a few years ago, using printing-out paper, had but one speed, to which he had to bring all of his negatives. Today, we have many speeds and contrasts and surfaces. In fact, there is practically no limit to what can be done. We have the four different contrasts of Azo paper line, for instance, soft, hard, hard medium and hard X, as well as Argo, Cyko and the Haloid Industro, all of which have their particular adaptability and their individual peculiarities make them very desirable in obtaining the best results from any and all negatives. However, in making a print from a negative, keep towards the soft end as much as possible, as it is there that you get the long scale of tones and better gradations all through the print, one of the points that distinguishes a good workman from a poor one.

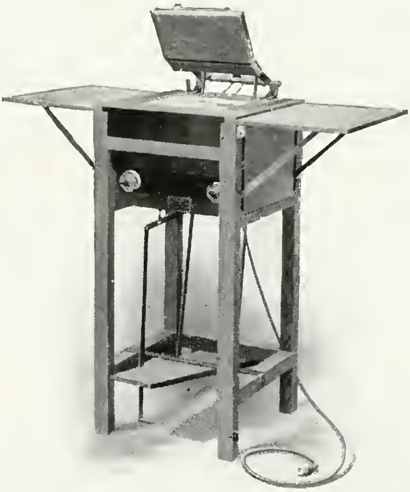


Fig. 72

There are many stunts used by good printers to pull themselves out of tight places at various times. I will describe two that are more commonly used than any others in printing undertimed and uneven negatives, for no matter how careful the operator may have been and how much has been done on a negative in staining and blocking, negatives will find their way to the printing-room which are far from good and are shy in quality. Negatives, such as of interiors where there is furniture, dark wall paper, etc., will have detail, but in the print will show a little too dark. One way to correct that is to take a printing frame and build it up, say, three inches with cardboard, similar to shown in Figure No. 73. Cover it with vignetting tissue, cepia or onion skin paper, place your negative in the frame and hold it up to the light

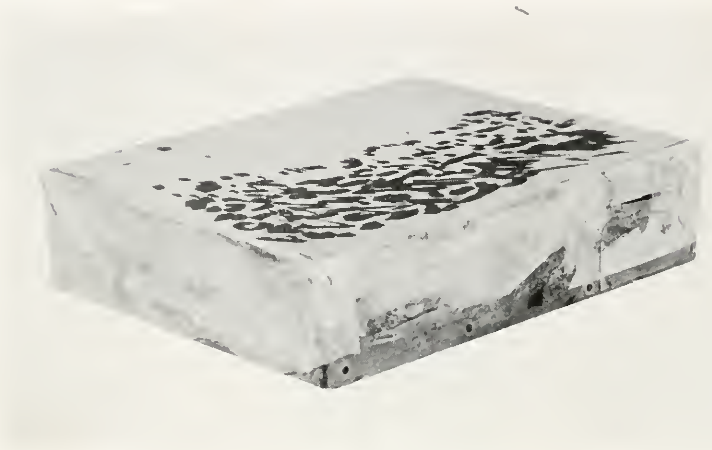


Fig. 73

and daub opaque on in splotches here and there over the thin places. It does not require much practice and you will be surprised what an improvement it makes, but, of course, the frame must be kept moving before the light during the exposure (this being one of the advantages over a printing machine) as one gets more diffusion.

Occasionally an operator will go out on a job and bring back a negative horribly undertimed through lack of sufficient artificial light. Illustration No. 74 is a print from such a negative. At first sight it looks as though there is absolutely no hope, but there is. One way is to make a very thin transparency from that negative and bind it in contact on the glass side, which means that your thin place in your negative is being covered by a thin deposit in the shadows of your transparency and your high-lights are not being obstructed by the transparency. Of course, it does not make as nice a print as the negative would if fully timed, but it will "save the bacon" many times, and is an old stunt which has been used for years. Illustration No. 75 is a print from the combined negative and transparency.

The washing of prints is quite a proposition in the large studio, where prints are turned out by the thousands, as there has never been a real satisfactory washing machine put on the market that would wash large size prints, that is, prints from 8 x 10 on up. About as good an arrangement as I know of is illustrated in No. 76, which is a pen sketch of a washing tank used by one of the largest studios. These boxes work practically automatically in that, as soon as one side is filled, the weight of the water turns it over and the water runs out that side, while the other is being filled from the faucet. The

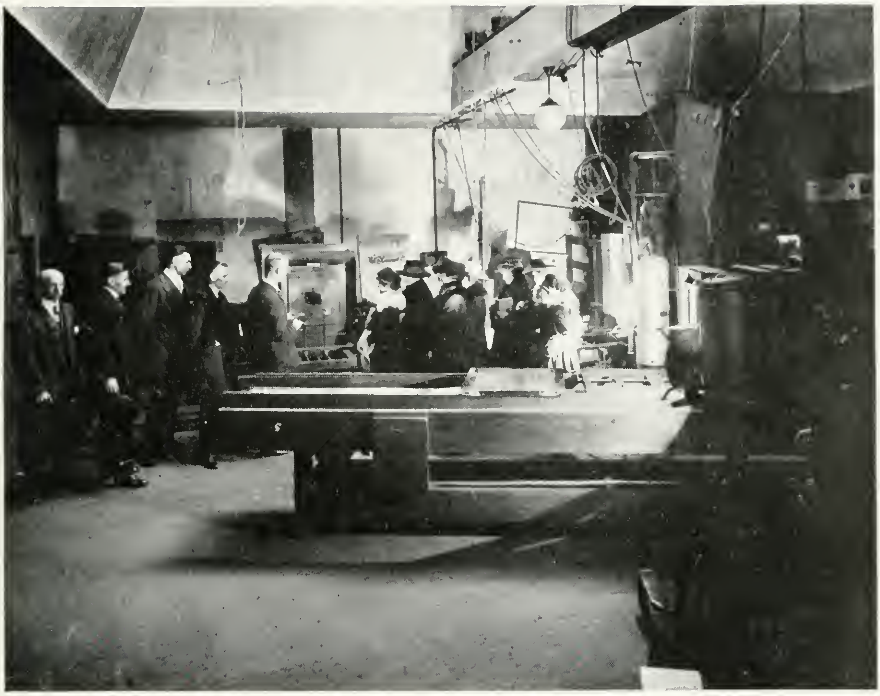


Fig. 74

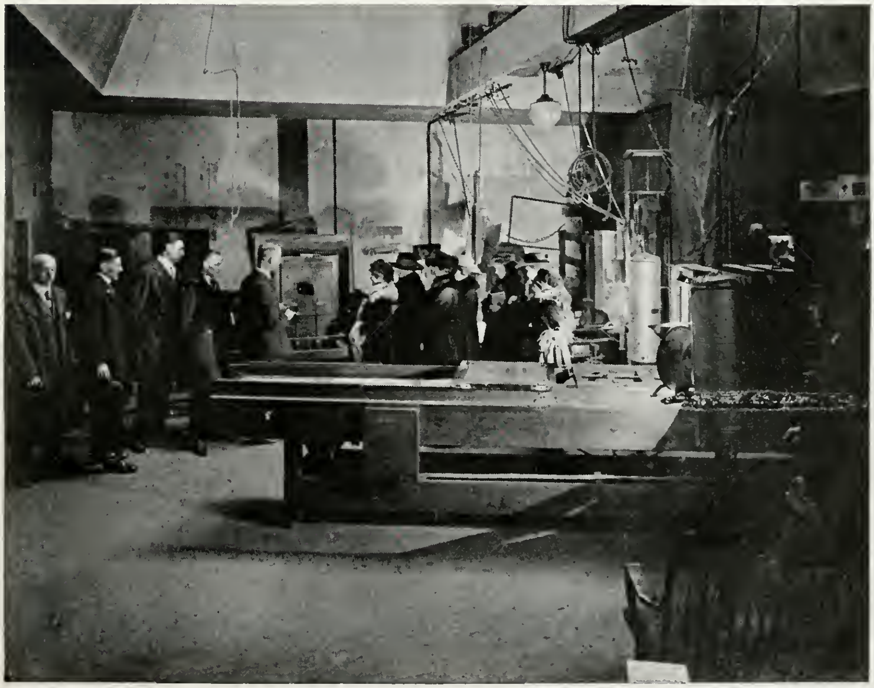


Fig. 75

studio mentioned has fifteen to twenty in a battery, with one boy to change the prints from tank to tank, and is as practical a way to handle a large amount of good size prints as I know of, although the washing of prints by hand and changing from one tray to another, as used by the majority of the studios, after all has been said and done, is about the only satisfactory manner of thoroughly washing any kind of a print.

The drying of prints is another proposition that worries many of us. Studios doing a lot of advertising work, where speed is essential, have to turn out prints in a hurry. One way to do this quickly from ferrotype tins is by a drying cabinet such as illustrated in pen sketch No. 77. This cabinet is generally made of wood with slots to hold the tins with the prints on them in an upright position, with an air space between, so that the air can pass right through from the bottom. There is a gas flame underneath the cabinet with an electric fan at the top, pulling the heated air from the gas flame right straight up through the cabinet past the prints. Prints will dry in a cabinet of this kind in five or six minutes under normal conditions. I would not recommend this system for prints with muslin backing though, for to prevent them from sticking and to get the proper gloss, the prints should dry more slowly.

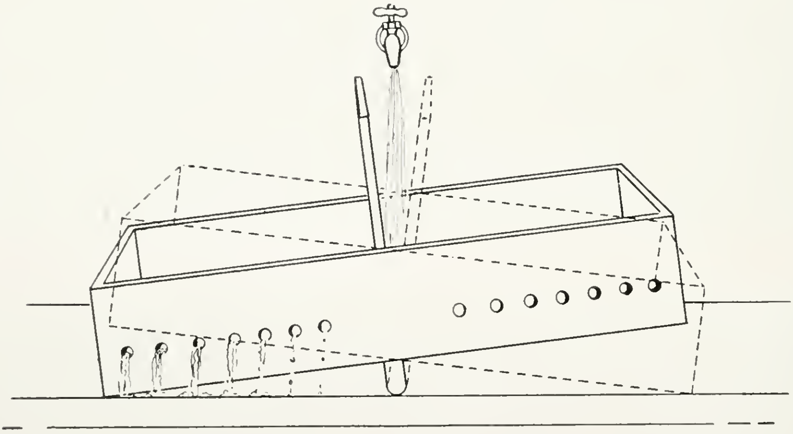


Fig. 76

The kind of ferrotype tins and the care of them is a matter for much consideration. Almost every day someone asks me—"what do you put on your ferrotype tins." Tins when they are new do not need anything on them and I firmly believe that if they always had good care and the prints were properly hardened before going on to them, the tins would not have to have anything on them. It is only when tins get scratched and dirty and prints have stuck on them that you need a remedy. What to put on tins is governed by circumstances.

If you are delivering prints to commercial artists or to people for coloring, or you are coloring the prints yourself, you certainly do not want to put paraffine and gasoline on them. But, if you are delivering prints to customers for salesmen's sample books, paraffine and gasoline is all right, although it should be used sparingly at all times and the tins should be polished to the limit—the more they are polished, the better.

The real theory of it is that no more paraffine should be put on the tin than just enough to fill the scratches.

If delivering prints for commercial artists, wash the tins with warm soapy water, but do not rinse them very much and apply the print directly. Then, when the artist applies saliva to the print to make his color stick, he will have dissolved off what little soap there was on the print.

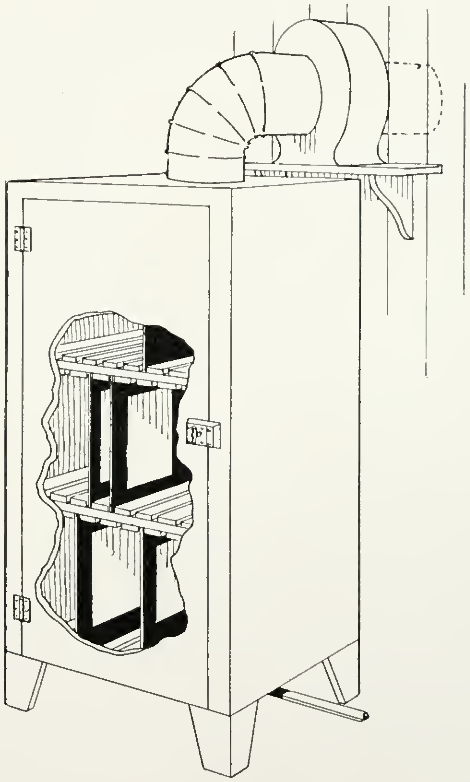


Fig. 77

Paraffine and gasoline should never be applied to a tin while the tin is still wet. The tin should be rubbed dry and be free from paste for the best results.

Of late years there have come into use, for squeegeeing purposes, heavy sheets of celluloid, which have their advantages and disadvantages. The advantages are that you have practically no trouble from prints sticking, you can put twice as many prints on, as the sheets can be used on both sides, and they are easier to wash. But the disadvantages are that they are so easily scratched and are so unwieldy in handling and difficult to set up that, taking it all in all, tins still have the preference.

Some of the old time shops use plate-glass polished. While plate-glass gives a very high gloss and absolute contact, it is more easily broken and unless prints are hardened to the limit and the glass well polished, the prints are always sure to stick.

A few points about the care of tins. When tins are first bought, to last a long time, the corners should be slightly rounded with a pair of tinner's shears and then filed off smooth. The backs of the tins should be finished with asphaltum varnish, which makes them water-proof on the back and does away with one difficulty—rusting of the backs of the tins, and during all operations of washing, squeegeeing, etc., should be stacked face to face.

The tins should never be allowed to stand with water drops on them, and if not used immediately after washing, should be thoroughly dried. It will be found that much of the sticking of prints to the tins is caused by these dried tear drops.

If one would undertake to figure up the waste in paper, muslin and time, caused by careless handling of ferrotype tins during a year's time, the amount would stagger him, and I think, give him cause for serious thought on the matter.

The application of muslin and hinges to prints is another item that bothers some photographers. In studios where employees' time is a matter of consideration, this operation is generally done in a machine-like way, but the principle is the same in smaller places. The procedure is about as follows:

The prints are separated in the water in lots for quick handling and are put in place on the tins (the tins first being rinsed), together with the hinges, which have been well soaked in water beforehand. The tins are then passed along for squeegeeing—a wringer will be found a big time saver—although many prefer the velvet rubber squeegee. A little idea here to prevent tearing of the hinge is to cover the entire tin with a piece of oil cloth and squeegee through the oil cloth. The tins are then stacked up on edge to let the surplus water drain off, although running them through blotters keeps the tins in better condition.

The prints are then pasted—not just here and there in spots, but evenly all over. A good thin paste is better than a watery paste. We have all had troubles with paste, that is, when we wanted it, it never was made, or else it was sour, watery or something wrong or it ran out toward the end of a large job, so that it has resolved itself down with the majority of us, to using a prepared paste powder, and eliminating considerable trouble.

After the pasting operation, the muslin is laid on and brought out smooth in all directions by the hands. But one should be careful to see that the muslin is in contact all over, and the muslin should, by all means, be kept clean. The grade of muslin to use is usually governed by the class of work. There is no advantage, however, in using an extra good grade, nor is it economy to use a real cheap kind. There are many backing cloths on the market now, made especially for this work, but they are generally of a drab or light tan in color, which is the only draw-back I can see.

Hinges can be bought from any printer or paper supply store cut to size, although some people still use backing paper for hinges. The grade of paper should be of a heavy bond or ledger paper and printers usually have large quantities of left over ends which can be purchased for a trifle.

The proper method of drying prints with muslin on them is to lay them absolutely flat, for the best results, although most commercial shops now dry them on edge, time being the governing factor. There is no real safe method I know for rapidly drying prints with muslin backing.

Properly equipped and with a trained crew, one tremendous lot of prints can be put on tins with muslin and hinges in a short space of time, but if everything is not arranged conveniently and there is not enough help, it is a tedious job.

Many prints are wanted these days in sepia. Of course, there is a variety of formulæ for sepias, but the old, straight hypo alum is still about the most reliable for getting results easily and conveniently.

The tone of the print is good and the bath can be used hot or cold.

Another thing used in the printing-room a great deal is a cutting bleach. There will be many enlargements and occasionally prints with dark edges or portions of an edge which should be eliminated, background that tint through, etc., which can be bleached out with the following formula: To one dram of saturated solution of potassium cyanide (be sure to mark the bottle "deadly poison"), add two ounces of water. To this add about 25 to 30 drops of iodine solution, such as obtainable from the drug store and you have a very fast and effective cutting bleach which, when applied to your print, will bleach out to a pure white any portion it touches. This was mentioned in one of the previous chapters in connection with bleaching out a photograph under a drawing.

Prints, with a gloss surface, often show abrasion marks, which many find troublesome to remove. A piece of cotton dampened with alcohol and rubbed on a cake of Bon Ami, such as used in cleaning windows, and then applied to the print, will quickly and easily remove such marks without, in any way, damaging the print.

When wanted for salesmen's sample books, especially when without hinges, the prints should have the corners rounded. There are several machines on the market for this purpose, any one of which will be found a good investment for a studio turning out large quantities of prints and the appearance of the print is greatly improved, there being no corners to become broken and ragged.

CHAPTER XXV

BLUE PRINTS, VANDYKES AND PHOTOSTATS

MANY photographers, who are connected with industrial plants, engineering and architect's offices, have charge of the blue printing department; also many commercial photographers make large numbers of blue prints from dry plate negatives, while the larger commercial studios doing merchandise set-ups and catalogue work for out-of-town customers use the blue print for customers' proofs.

There are several reasons why this latter is done. Should the proof fall among unscrupulous people, it cannot be used for reproduction purposes, as the blue print will not reproduce by the half-tone process to any degree of satisfaction. Another reason is that the blue print is cheaper, and, with many customers, such as furniture manufacturers, manufacturers of stoves, statuary, picture frames, etc., where the goods are known, but only new designs want to be shown, blue prints fill the wants very nicely.

While the average commercial photographer looks upon blue prints as a nuisance, they are really the source of a great deal of profit when handled right and in quantities.

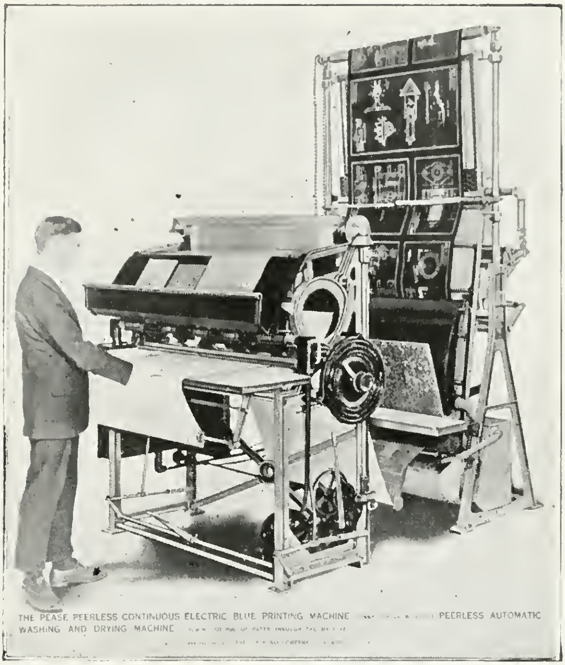
Blue print paper, as purchased in the open market, comes in three degrees of speed—slow, medium and fast—also comes in several grades of quality as to paper stock that it is coated on. If you are making blue prints from drafting room tracings on a continuous blue printing machine, you will need either the fast or medium speed. If making blue prints in a printing frame out in the sun, a slow or medium speed is far preferable. The medium speed paper is also used in printing from dry plate negatives.

Illustration No. 78 is a continuous printer, washer and dryer and is one of several different kinds on the market, and this machine has the paper fed to it in continuous rolls and is printed, washed and dried and rolled up on the other end. It makes a very good outfit for studios doing production work.

Blue print paper, at its best, does not keep very long, deteriorating very rapidly in a damp or light place. It should always be kept in a dark and dry place. For those who prefer to coat their own paper the following is a formula that gives very nice results:

Water	4 gal.
Red prussiate of potash	9 oz.
Citrate of iron and ammonia (green scales)	20 oz.
Iron and ammonium oxalate	54 oz.

Mix well in a barrel or crock and let stand for two or three days, and it is ready for use.



THE PEASE PEERLESS CONTINUOUS ELECTRIC BLUE PRINTING MACHINE [illegible] PEERLESS AUTOMATIC WASHING AND DRYING MACHINE [illegible]

Fig. 78

There are several different ways of printing blue print paper. You can print it in the sun, with arc lamps, or with Cooper Hewitt tubes. They are all satisfactory as far as I know, although the arc lamps are probably the speediest for all around work. The Cooper Hewitt tube people make an unusually large tube especially adapted for blue printing.

Professional blue printers always treat their prints with a solution of bichromate of potash to give a better blue—it also makes it more permanent. The method of applying this solution is about as follows: Enough solution of bichromate of potash is added to the washing water to make it a fairly deep yellow color and the prints are immersed in this. It has rather a bleaching action, so, therefore, many printers do what they term "burn 'em up"—that is, print them several degrees stronger than ordinarily before immersing in the bichromate. Other printers, especially those printing from dry plate negatives, dip their over-exposed prints directly from the printing frame into a strong solution of bichromate of potash, and then wash the print thoroughly. Either way gives satisfactory results. Illustration No. 79 is a coating machine for those who coat their own paper.

VAN DYKES

In printing from paper negatives and for making paper negatives from tracings, Van Dyke paper is used. This is known under several other names, such as black line process, brown print, and Maduro paper. While this process is somewhat similar to blue print, it differs in that it must be fixed in a weak solution of hypo, or some fixing agent of a like nature.

Commercial photographers also use this paper for making prints from line negatives, copies of letters, etc., as it has no emulsion on it and it can be folded up and creased without injury, and as this paper is also very thin in certain grades, it is not so bulky as regular photographic paper.

This paper can be bought ready coated or you can coat your own, in which case, the following is a very good formula:

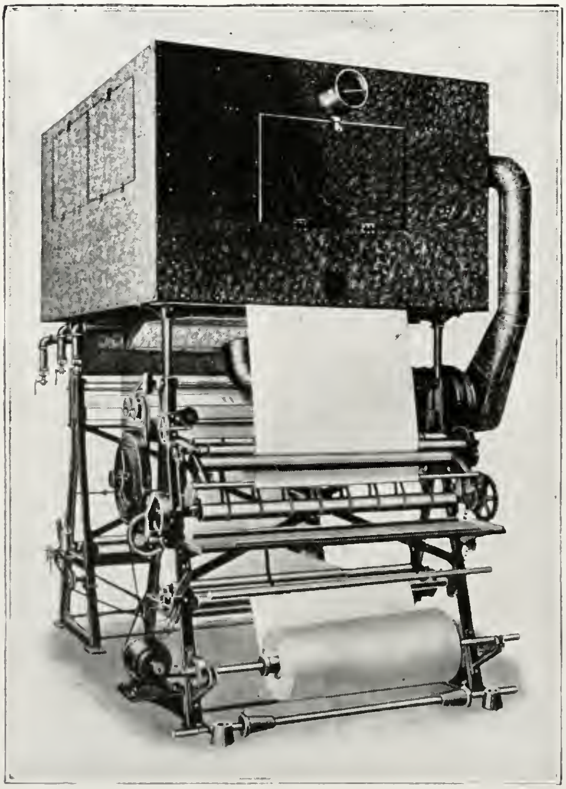
No. 1.

Water	24 oz.
Ferric oxalate	6 oz.
Citrate of iron and ammonia (green)	3 oz.
Tartaric acid	3 oz.
Lactic acid	2 oz.

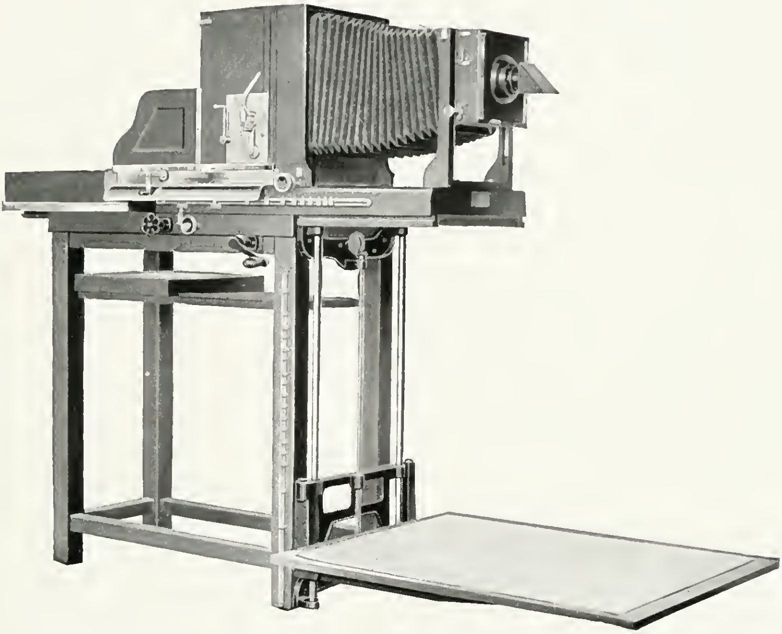
No. 2.

Water	24 oz.
Nitrate of silver	3 oz.

Mix separately until dissolved, then mix together.



Coating Machine Fig. 79



THE PHOTOSTAT Fig. 80

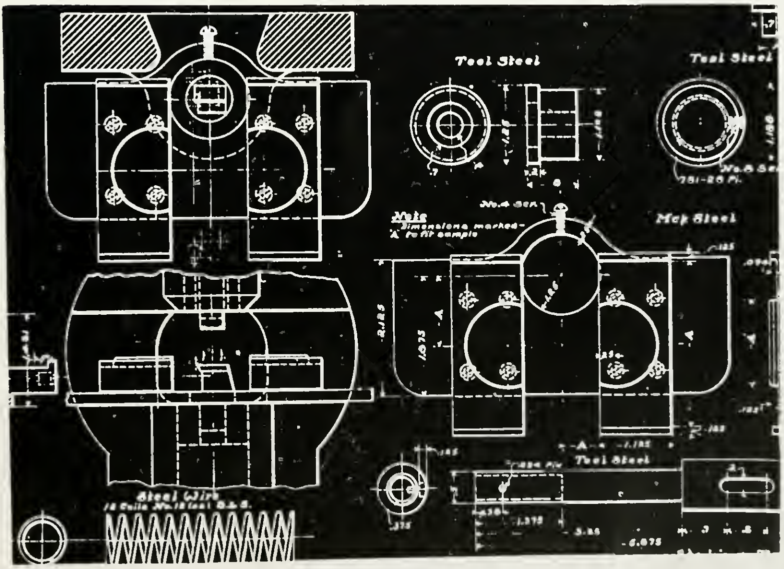


Fig. 81

Copy of Photostat Tracing

THE PHOTOSTAT

In large manufacturing plants, there is another machine that is found in nearly all the photographic departments and that is the photostat—see illustration No. 80.

This machine is used to copy drawings, blue prints, letters, checks, pages from books, designs—in fact, there is scarcely any limit to its scope. The photographs are made directly onto a special bromide paper through the lens, a prism, thereby making them read right, and without the necessity of going through the usual negative and print process. The colors in a Photostat print are reversed, the black coming white, and white, black. Illustration No. 81 is of a Photostat copy of a tracing. If the original colors are desired, a second copy is made from the first Photostat print.

This machine is made in various sizes to fit almost all kinds of work and requires very little skill to operate.

The lighting equipment for a machine of this kind is generally of the Cooper Hewitt type, one type on each side of a horizontal copy board.

The copyboard is marked off with rectangles, which are given numbers to correspond with the length in inches, and there are corresponding numbers on the leg of the machine and on the Camera Bed to which the machine is set, so as to mechanically give the correct focus. The machine is also equipped with apparatus for developing and fixing the photographs, so that all of the work is done right in the machine itself, except for the washing and drying of the photographs.

In some places the Photostats are equipped with a light, tight conveyor, which shoots the photographs from the machine through a specially arranged opening into a dark room, where the developing and fixing can be handled with somewhat greater rapidity.

When maps or drawings are larger than the regular copyboards, they can be copied just the same. Under these circumstances, the subject is hung on a wall or a screen at the side of the machine, and the prism turned at right angles to its regular position, so as to cover the subject which is to be photographed.

Occasionally, blue prints are made directly from the Photostat prints. When blue prints or Van Dykes are to be made in this way, better definition is obtained if the prism is removed, and the subjects to be copied hung on the wall and regular negative print made directly on the bromide paper. This negative print is then re-developed, the same as the sepia process in printing—that is, bleached out with ferricyanide and bromide and blackened with sulphide.

CHAPTER XXVI

PRINTS AND COLORING

AMONG a certain class of customers there is an increasing demand for colored photographs, especially is this true with such lines as bicycles, juvenile automobiles, dishes, notions, candies, soda fountain supplies, toys, games, etc.

It is a wonderful help to a salesman to have photographs of his line. It is still more of a help to have that line in its real colors. Commercial photographers have been considerably bothered, for a number of years, to get this work done satisfactorily, cheaply and with a fair degree of speed.

In times past, for the above reason, undoubtedly, there have been only a few commercial photographers throughout the country who have done this work. Now, there are several in almost every large city. It is a profitable line of the business, attracts attention and creates new business wherever shown. There is nothing so really difficult about it, merely practice and patience.

For a line of goods to be colored, the negatives should be correctly made, that is, they should be made for color correction, and, in some cases, separation. Of course, the pioneers in this color game relied almost entirely on faking their negatives, but nowadays, the men who are making a real success of colored photographs are using filters and panchromatic plates, when there is very little trouble in getting the goods to look right and, in consequence, the colors right. This is really important, this making of the negatives, for unless they are correctly made, there is trouble from the start.

Of course, there are times when even with panchromatic plates and filters, staining and all manner of faking will have to be resorted to, but this should be avoided as much as possible, as customers are very particular as to the colors, many articles being known by the colors, and a little off shade in the color, caused by an off shade in the print, is recognized instantly by the customer and by the trade buying the goods, and creates a suspicion in their minds.

Figure 82 is a straight print from negative that was made for coloring. You will notice the candy hearts, in the upper right hand corner, are very nearly white in the high-lights, with the shadows a light gray. These are the old familiar red cinnamon hearts you used to eat in your childhood days. You will also notice, in the candy beans, the light yellow and red beans are practically white with gray shadows.

About the first requisite in a print needed for coloring is that there should be absolutely no color to it. By color, I mean green or olive tint, nor should they be a blue black—they should be black and white, but not too dark, nor

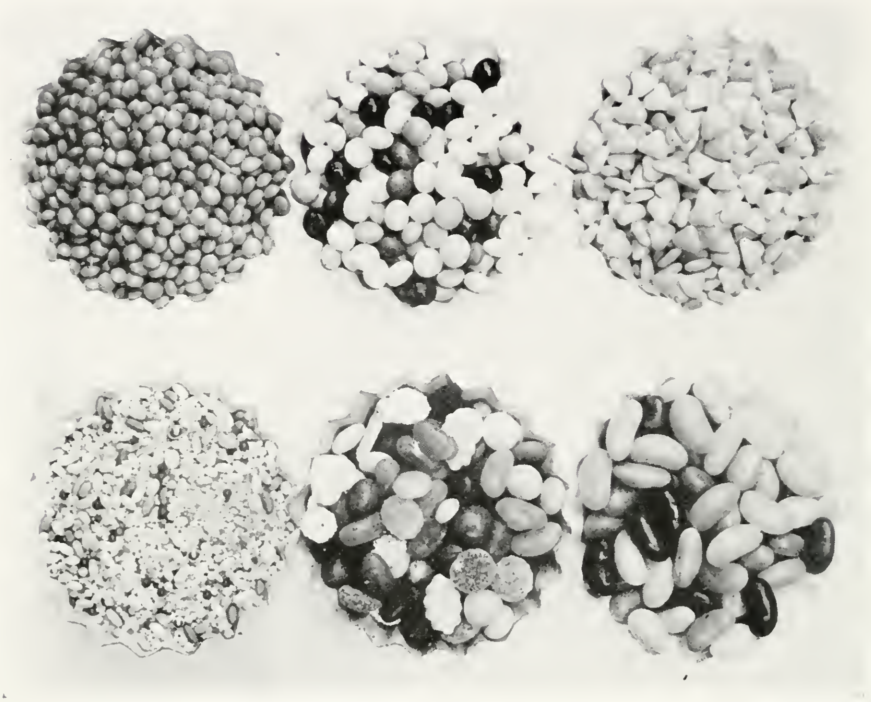


Fig. 82

quite as dark as you would carry them in case of prints not to be colored. They should be developed fully, but not over-developed.

Another point about the printing is, there should not be too much alum in the fixing bath to get the best results, and for easy coloring, the prints do not want to be hardened to excess, nor should they be fixed in an old fixing bath that has any tendency to scum or sediment.

If they are gloss prints, there should be no paraffine on the tins, as this sometimes causes crawling colors. If the prints to be colored are toned sepia, the scum should be removed from the print before it is dried, after coming from the sepia bath.

The colors and application thereof is where the real stunt comes in and trouble commences.

There has been a great deal of wondering and mystery in times past as to what these colors were and where obtained. The colors that are the more easily obtained and give fair results in small lots of coloring are what are known as Japanese or Velox Transparent Water Colors, obtainable at any stock house, and another and far cheaper way is to use common household dyes, such as the Diamond Dyes in the colors desired. In fact, practically any shade can be gotten from the three primary colors of red, yellow and blue.

Of course, there are many different ways of preparing these colors, but, generally speaking, the simplest way is the best, dissolve in warm water, making a strong solution for stock colors.

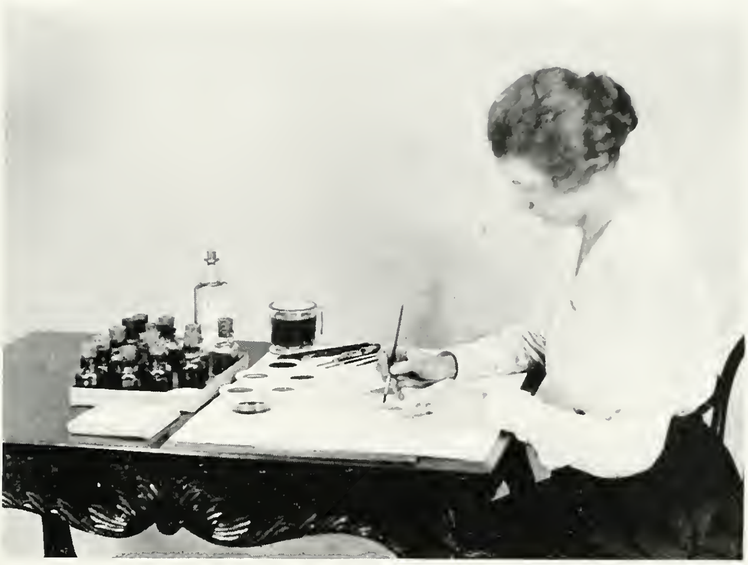


Fig. 83

A knowledge of colors and combination of colors is a great help. To some people it seems to come very easy and other people never do seem to learn. However, it is hardly necessary to go into a combination of colors to make others in these pages, as that has been taken up by other people more extensively, and in a more comprehensive way, than is possible for me.

Figure 83 represents a colorist at work and gives a general idea as to a colorist's layout. This lay-out generally consists of about the following articles: Several sable brushes, ranging from sizes for fine lettering to the heavy body brush for large washes. A quill point lettering pen, a ruling pen and a large lettering pen of the ball point type, which will not scratch the film of the print. Several bottles, about a dozen, for concentrated colors; an eye dropper for transferring colors from the bottles to the small dishes; a half dozen or so of small dishes of the butter dish type, in which to mix various shades desired; a pile of small blotters of the lintless variety and several pieces of clean cheesecloth, together with rulers, triangle, curve, a bottle of ammonia and a real sharp etching knife, which comes in extremely handy at times.

To start in to color a print, about the first thing to do is to moisten the place with saliva, applied with a small piece of the cheesecloth—absorbent cotton leaves a lint that hinders a proper application of color. You will find, in different books on coloring, all kinds of medium mentioned for this purpose—good old saliva or "spit" cuts the film and any grease on the print better than anything I have heard of. The next step is to take your brush, charged with the color, which should be applied smoothly and evenly to the part where it is wanted only and as soon as it is on a second or so, blot with a clean, dry blotter. One application only should be required, and the shade of color applied should be such as to show right over a black and white print or sepia print. Several applications of color to one spot should be avoided, as the detail in the print is soon covered up.

In blending, this will be found much easier to accomplish if but a small quantity of color is carried on the brush at one time, although a smoother job will result if the color is gradually toned down with water.

As to whether it is better to color over a sepia print or a black and white print, there are cases where a sepia print is possibly better, but for the general run of work, a great deal more speed will be made by training oneself to color over a black and white print, keeping in mind that your resultant color should come right over a black print. While a sepia print is warmer and easier to color over, such a print is not always available and another thing, it takes time to make sepia prints and some subjects positively will not color satisfactorily over a sepia print, while, with black and white, almost everything can be colored without difficulty, keeping in mind that a light wash is much better than a heavy wash of color.

If necessary to remove a color after it is on a print, a little ammonia, applied with a brush and then blotted with a blotter, with several repetitions, will remove most of it, but this should not be relied upon, especially in the heavier colors.

One of the prime requisites for a successful and speedy colorist is neatness and order, as there is nothing quite so inexcusable as a sloppy set of prints—also nothing will disgust a customer more than to see a print on which the colors have run over into places where they should not be and to be presented with a print with a soiled and discolored back.

One of the big disadvantages to coloring on glossy prints, backed with muslin, has been that there was so much coloring on a print, that the moisture, in applying the colors, caused considerable cockling. A way to get around that is to set the colors after the coloring operation is applied and then squeegee them. A solution that will set the colors has been somewhat difficult of attainment. Almost any mild acid, such as citric, acetic, tartaric, tannic, etc., will set some of the colors, but to set all the colors has been the trouble. A 5 per cent solution of phosphotungstic acid will do the trick if it is applied correctly.

The print, after it is colored and dried, is immersed in the 5 per cent solution, being sure first that the tray is absolutely clean. Just as soon as the print is limp, put it directly on to the ferrotype tin—do not slide the print in this operation—squeegee, apply your hinge, paste and muslin. The print should not be left in the acid for any length of time nor should they be washed after going into the acid.

The acid does not seem to hurt the prints to any extent so far as I have been able to ascertain, as I have had prints set in this manner exposed in bright sunlight for over a year with no apparent fading of the colors or print.

A great deal of coloring now is done on other papers beside glossy paper, such as the Azo E. Transparent oil colors can be used as well as aniline in that connection and many beautiful effects can be worked out easily, to the profit of the photographer as well as the customer.

CHAPTER XXVII

ADVERTISING PHOTOGRAPHY

THE making of photographs for advertisements is at once the most fascinating and can be made the most remunerative branch of commercial photography. It is fascinating in that you are helping to create a demand for a product—you are coming into contact with the pulse of the world—commerce.

Many fortunes have been made almost over night by means of advertising in the past. Today, many standard products owe their success almost entirely to advertising. Photography is playing its part in the making of ads.

It is remunerative, because, if you create an idea, make the pictures to get that idea across, you are entitled to all you have the nerve to ask for, and there is no fixed price on brains.

The commercial photographer is especially fitted for this line of work, as he already has an acquaintance with business men who advertise. He is in on the ground floor with the manufacturer with his new models of different goods and appliances. He has, in other words, an inside track to what is coming. He has a knowledge of photography and the tricks and stunts necessary for this work. He should get it. But, I am sorry to say, few of them do, as the photographs that seem to grab the big money are photographs made, oftentimes, by amateurs. However, there is a new school of photographers coming up who are going after this business, and they are going to get it.

Conditions are really coming to such a point that the advertising pages of the leading magazines are more interesting, or equally as interesting, as the reading pages, due, to a great extent, to the quality of the advertisements inserted, and, while it is true that many drawings and paintings are still used, there is nothing that will tell your story like a photograph, and advertisers are beginning to realize this fully.

Even the cover pages of a number of the magazines of late have been made from photographs, and it is, indeed, a tribute to the progress of photography, but why should this not be the case for, in the hands of the skilled photographer, the camera can be made to do almost anything.

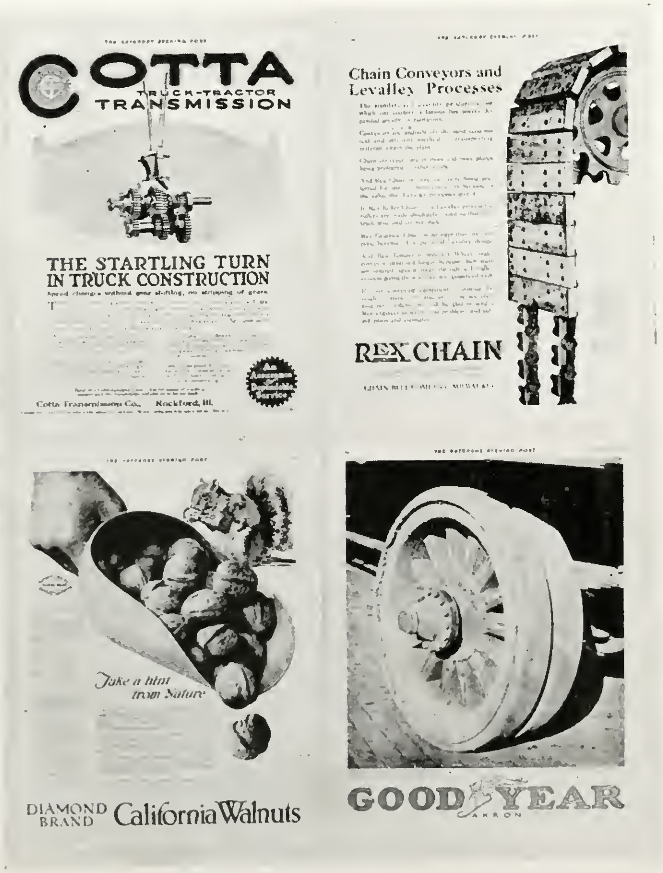
Advertising managers and advertising agencies want photographs. They would take all of them they could get, but they want quality; they want something with a story, something that will round out their argument for the goods, something with a punch and up to the minute, and they want it when they want it, which does not mean next week, but today, for an idea is an old story in a week or a month.

About the simplest rule I know of, in making photographs for advertisements, is to get the picture so that it tells a story so that "he who runs may read." In other words, it must tell the story at a glance and tell it strongly so as to make an impression.

In this line of work you will come in contact with the advertising agencies, or the advertising manager of the concern itself. There are two methods open for procedure. One is to work up their ideas, and the other, and by far the best way, that is, where the money is, is to furnish the idea yourself, work it up yourself, and turn it over to them with a catch phrase or an idea for the printed copy.

Advertising agencies generally have one or two artists on their staff who spend all or practically all of their time working up advertisements, which are nearly always started from a photograph, or photography plays some part in the "make-up" one way or another. In other words, photography is an essential in the advertising world.

For instance, Figures 84, 85 and 86 are copies of page ads taken from an issue of the *Saturday Evening Post.*



COTTA
TRUCK-TRACTOR
TRANSMISSION

THE STARTLING TURN IN TRUCK CONSTRUCTION

Cotta Transmission Co., Rockford, Ill.

Chain Conveyors and Levalley Processes

REX CHAIN

Take a hint from Nature

DIAMOND BRAND California Walnuts

GOOD YEAR
AKRON

Fig. 84

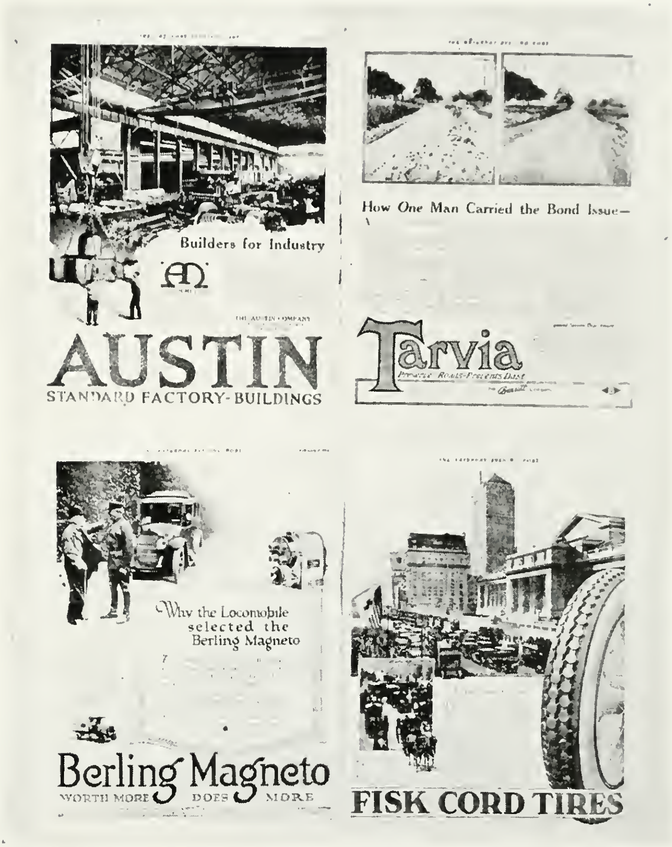

Builders for Industry
AUSTIN
STANDARD FACTORY-BUILDINGS
How One Man Carried the Bond Issue—
Tarvia
Why the Locomobile selected the Berling Magneto
Berling Magneto
WORTH MORE DOES MORE
FISK CORD TIRES

Fig. 85

The one of the Cotta Transmission is partly photograph and partly drawing, the phantom effect is obtained by working over a photograph and is the type generally handled by a commercial artist. The chain conveyor is a straight photograph, the Goodrich tire ad is nothing more than a close-up photograph, made with a good strong side light, with the camera practically on the ground. The nut page is a wonderful example of photography, and, as one would say in advertising circles, "it should knock them dead," but this just goes to show that this photographic work is nothing beyond any photographer. One needs nothing elaborate in the line of equipment—nothing but what the ordinary photographer has.

Figure 85 shows a collection of ads made up from what are generally known as stock negatives. The one of General Pershing is a news photo used in an effective way. The Fiske Cord Tire ad is a combination of an old photograph, a modern photograph and a copy of a drawing, and makes a spectacular ad with some art work.

The Tarvia ad is nothing more than two photographs, evidently made

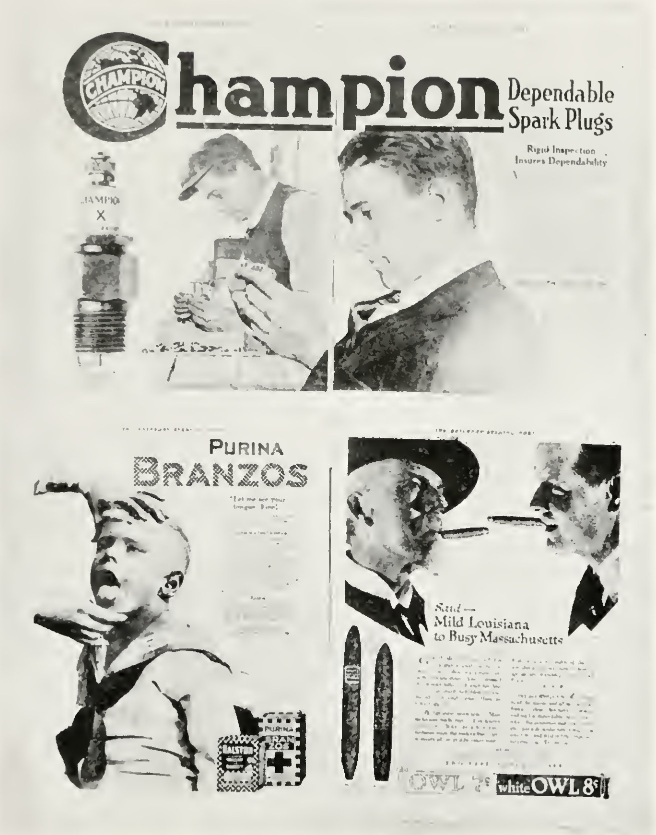

Champion Dependable Spark Plugs
Rigid Inspection Insures Dependability
CHAMPION
X
PURINA
BRANZOS
Said—
Mild Louisiana
to Busy Massachusetts
OWL
white OWL 8¢

Fig. 86

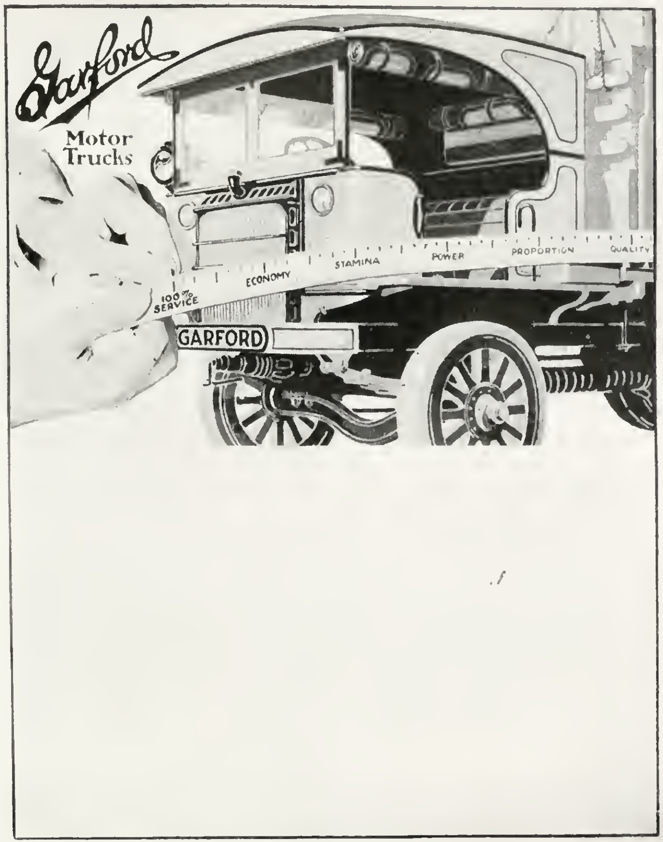

Garford
Motor Trucks
100% SERVICE
ECONOMY
STAMINA
POWER
PROPORTION
QUALITY
GARFORD

Fig. 87

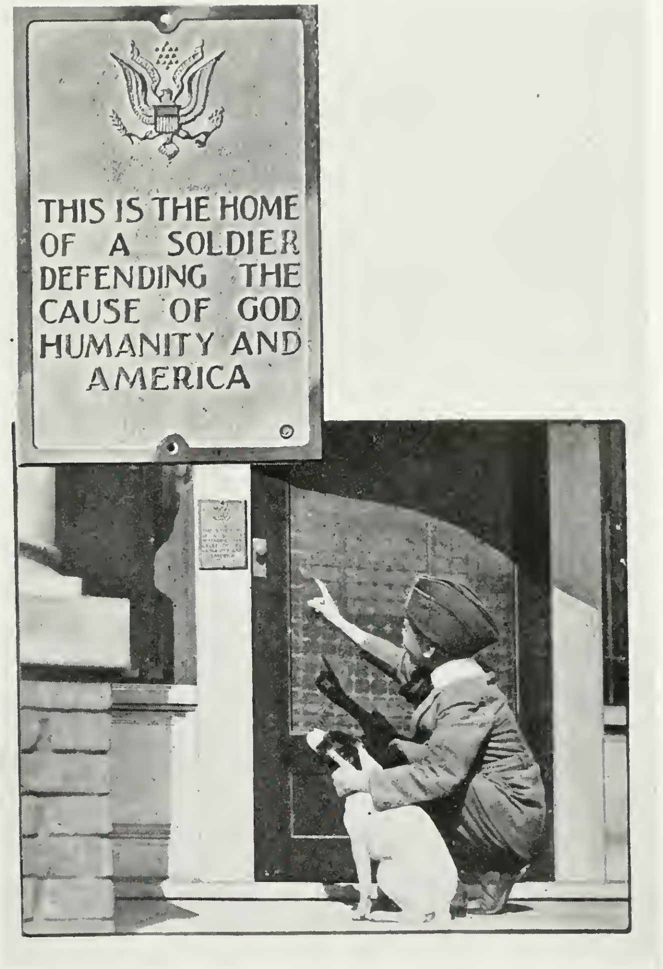


Fig. 88

with a Kodak, and yet drives home the slogan that "nothing will tell your story like a photograph," as does the Austin ad.

The Champion Spark Plug ad represents what is known as model stuff, in that it is here that the selection of models and the handling of these models in posing and directing them plays an important part. The plug itself is practically an unretouched photograph.

The Owl cigar ad demonstrates what are known as light effects, which, together with the characters selected, are what makes its success, and these ads have attracted attention all over the country. The cereal ad is a straight photograph.

Figure 87 illustrates a type of ad which one is the more frequently called upon by the advertising agencies to execute. This particular ad is comprised of a photograph of hands, a tape measure, which has been retouched, and the retouched photograph of a truck.

Figure 88 is a purely photographic advertisement; that is, it is a combination of two photographs with some art work on the tablet and has an appeal to it that made it a success.

Figure 89 is an advertisement for a trade journal and shows the construction of an advertisement of this kind. The arms were photographed separately, as well as the truck. The truck was photographed with an extreme wide-angle lens, very close to the front, with the camera right on the ground. The factory picture for the background is a light print, made from a line negative, all of which only goes to show the possibilities of this work.

In making many ads, you will have to use live models. The eternal feminine attracts a lot of attention, and to get models for this work is not easy, as a rule. Almost any woman will tell you, or she thinks herself that she would make a model, but such is seldom the case. One that photographs well, with a pleasing personality, is hard to find. They must also have a certain

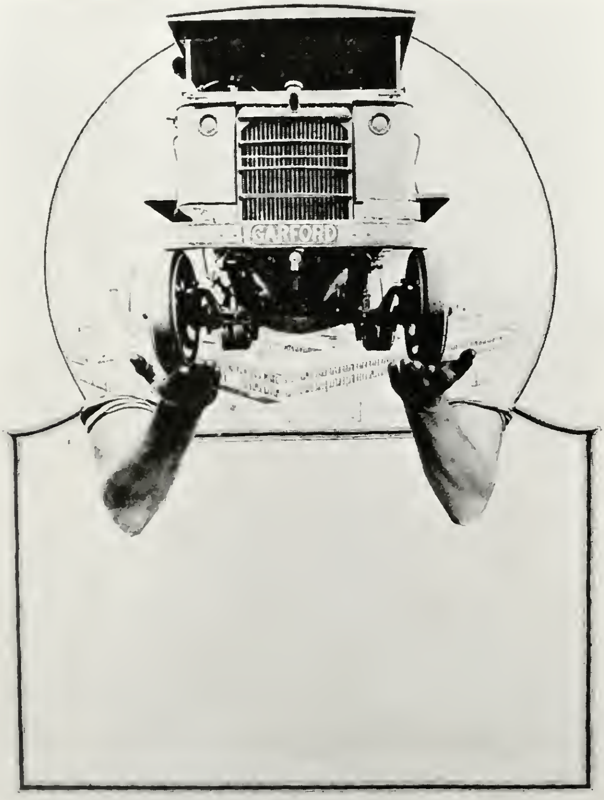


Fig. 89

amount of dramatic ability to assume a position or pose gracefully and quickly, and must also have a certain amount of intelligence to carry over the sale themselves.

Child models are not so hard to find, as every child, who is not too bashful, when worked with a little while, makes a dandy model. Models for character parts, such as old men, women, etc., are usually easily picked up.

Nevertheless, whether the model be man, woman or child, the photographer should get a release for services. This release is necessary before you can sell the advertisement to an agency or manufacturer, and a good short form for this purpose is about as follows:

Date.....................

In consideration of .... Dollars, the receipt of which I hereby acknowledge, I hereby sell and assign to .... the exclusive right to copy and reproduce the .... in any manner whatsoever, and to secure copyrights for all such reproductions.

Signature ....

Signature of Witness ....

This next form, although more lengthy, is explicit and covers all details:

For and in consideration of the sum of .... Dollars, receipt of which is hereby acknowledged, I, ..., who am of legal age, hereby consent that ...., of the city of .... State of ...., his successors or assigns, has the right, and the right is hereby given him, to copyright all pictures he has produced of myself, in any and all poses, as model, and I do further agree to permit the said ...., his successors or assigns, to use, or he may cause to be used, all such pictures for commercial and art purposes, without further compensation to me.

Witness my hand and seal this .... day of ...., nineteen hundred and ....

.... (L.S.)

WITNESS:

There have been many law suits, some running into thousands of dollars, over the use of photographs in ads, so, to protect yourself, as well as your customer, by all means get a release, no matter how unimportant it may seem. Friends of today may be enemies tomorrow, especially where money may be involved.

The advertising photograph field is unlimited, and is the greatest field in photography today, I believe, for a man who has ideas. He must have ideas, "pep" and ability, and with these there is no limit to what can be accomplished.

CHAPTER XXVIII

PRICES

THE prices you get for your work determine your profit. One of the drawbacks in times past, in commercial photography, and, in fact, the condition still exists, is that of *low prices.* This condition of low prices may be attributed possibly to some such incident as this. The manufacturer will go to a photographer, who has been used to making photographs in dozen lots of portraits, and ask him for a price on orders of, say, a hundred prints from a negative. The photographer gets excited, immediately builds a couple of houses or flats and a few other air castles with the money he is going to make, then gets scared for fear he might lose the job and down goes the prices, but a precedent has been established for like price cutting all down the line.

Another reason for low prices has been a lack of knowledge of costs. A cost knowledge or system of some sort is highly essential to every commercial photographer. He is dealing with business men who know their costs and why should the photographer not know his?

Hence, in making your prices, do not forget to take into consideration the depreciation of your equipment, which can be determined by the amount of work you can do with that equipment before it is worn out, when there should be sufficient funds on hand to replace it.

Your insurance, both on your business and your own person, should be paid out of the business and reckoned in your prices.

Were the amount of money you have invested in your business invested in something else you would expect a return. Therefore, figure it in.

I know you will think that is old stuff, but sometimes we all forget it in making prices, and the men who are making a success of commercial photography today are men who get a price—and a good price. They are men who deliver good work. They know it is good and they demand a living price—one at which they can make a profit after properly figuring their costs.

Those who are getting low prices are generally working night and day, have no new equipment, cannot give proper time to get quality, and they are all in all horrible examples of low prices. This is not only in one city, but it is true all over the country. If you are doing quality work, by all means get a living price; in fact, more than a living price. If you are not doing quality work, raise your standard. It will pay.

This question of prices is deeper than just making a living. If you are delivering quality work and getting a good price, your customer has more respect for you, you have more respect for yourself, and it is much easier for you to take your place among business men as a business man, and you are not ashamed of your calling.

One of the thorns in the commercial man's side is the purchasing agent. He will send out offers for bids to all the commercial photographers in his section, and what some of them do to these prices is a shame. There seems to be always some one who will cut the prices. One of the best ways to get around this is to well advertise the fact that you positively will not cut prices, rather, will not compete for such business, as it would necessarily cut quality as well. If the concern calling for prices wants quality, you will have no trouble getting the contract, for they themselves have usually had the same experience. They found out years ago that, for the same article, delivered in the same manner as their competitor, it is folly to cut prices. They know why. They have had cost accountants on their various items and know that to cut prices they lose money.

Competition is another thing that scares some commercial men into low prices. It is becoming the custom, in the larger firms of photographers, to maintain a real price for their work, and, if the customer insists upon a lower price, to send him to the fellow that makes the goods at a lower figure, because they have found out that, if he gets enough of that work, he is bound to go out of business, and that it is the quickest and surest way of eliminating a cheap competitor.

There is still another side to this price business. That is the man who uses his home for his studio, has no rent to pay, works his whole family if he has one, cuts prices unmercifully and then thinks he is making money. Maybe he does for a while, but in time he cuts quality, possibly not intentionally, but he does, for such a man generally has plenty of work, he has no time for outside interests and never takes his place in the business world. He never knows his brother photographers, and is a bad actor from start to finish. What could he not do and what could he not make by maintaining a good scale of prices? If he is a good workman, as many of them are, he could make money and make it easy, because of that very small overhead. He could specialize on some one branch and get top-notch prices. As his outfit is generally a one-man affair, he could get very close to his customers, for he both makes and delivers, and could give real service if he would only stop and think. But, I am sorry to say, very few of them do, with the result that the whole profession suffers.

Business concerns, really worth while, are commencing to find out that such an outfit seldom does give them real service. He has no really new ideas, nor has he the equipment and organization to give real bona fide service, so that part is gradually taking care of itself.

For a scale of prices, it is hard to lay down any that will fit all places and conditions. The following prices are average—averaged from studios both large and small, and are only meant to serve as a guide:

1. For photographs in the studio; that is, negatives made in the studio, the prices are as follows:

(Including objects, posters, etc.)

5 x 7, $2.25; 8 x 10, $2.75; 10 x 12, $3.50; 11 x 14, $4.50; 14 x 17, $6.00; 16 x 20, $7.00.

Of course, there are many photographers who specialize and get much more in cases such as photographing cut glass, stoves and work on which there is much preparation, when at least 50 cents more a negative is charged, but, on the other hand, there are some who make 8 x 10 negatives for 50 cents to 75 cents. I know it sounds ridiculous; however, it is a fact. Again, there are some who get unbelievably high prices for one negative and one print, with possibly no more work than the first fellow, but quality and brains, with a good dose of common sense mixed in, spells the difference.

2. For black and white copies, the average price runs about as follows:

5 x 7, $1.75; 8 x 10, $2.25; 10 x 12, $2.75; 11 x 14, $3.25; 14 x 17, $5.00; 16 x 20, $6.50.

Where color plates and filters are used, from 25 to 50 per cent. more should be added. It is the custom in some shops to give a discount on quantity negatives of copies where all are in the same focus, of approximately 10 per cent., which is really quite right.

3. For negatives made outside of the studio, the prices run about as follows: 8 x 10. First negative made within a limit of one mile from the studio, $4.00. Additional negatives made at same location and on same trip, $3.00 each. Beyond one mile limit, add 50 cents for each additional mile to cost of first negative in the mile zone. Extra negatives, same location and trip, $3.00. For 11 x 14 size, $6.00, with additional negatives at $5.00.

In connection with outside negatives, there is a question that comes up which is hard to settle. A customer will want you to go out of town to be gone two or three days. How much will you charge? There are many different ways of determining this. Some photographers insist upon a guarantee of $25 to $50 worth of work a day. Others make the customer pay the expenses from time they leave studio to time of return. It depends upon the customer. If for a railroad company, I believe transportation and per diem basis is good, together with a negative charge for each negative, while with other companies it is possibly just as well to get a guarantee of so much work and paying own expenses outside of railroad fare.

Again, another matter often coming up is when you go on a job and the customer will keep you waiting, sometimes for two or three hours. A time charge of not less than $1.50 per hour should be made. The plumber, the electrician, as well as the dentist and many others do it, why should not the photographer?

4. *Circuit panoramas* are made on a basis of 10 cents per square inch of film exposed within the three-mile limit. For work beyond the three-mile limit, add 50 cents for each additional mile traveled from the studio. A minimum charge of $15.00 should be made for any circuit panorama.

5. *Multiple plate or film panoramas.* A straight charge of $5.00 for 8 x 10 negatives is a good gauge for this work. In other words, a two-plate panorama would be $10.00, a three-plate $15.00, and so on.

6. *Graflex or Press Work,* within three miles of studio, $5.00 per assignment, including two or three exposures; $1.50 for each additional exposure made at same time and place.

7. On all outside studio work, where flash and electric lights are used, there should be an extra charge, which runs about as follows:

Open flashes, $1.00 and up extra to cost of negative. For one artificial light, such as electric lamp, each exposure 75 cents extra to cost of negative. Flash bag work for banquets, etc., $5.00 per bag, with minimum charge of $15.00, which includes cost of making 8 x 10 negative. For 11 x 14, $4.00 extra. Five bag work or over, no extra charge for 11 x 14 or 12 x 20.

The surrendering of negatives, or letting the customer have the negatives, has always been a little point of contention between many commercial photographers and their customers. This should never arise, as the negatives should always remain with the photographer who has made them and will do so, if the invoices rendered with the finished work read so much for one photograph, with so much for additional prints, and not so much for the negative and so much for the print. To make it short, if you bill the customers for negatives, they belong to the customer, but if you bill prints, the negatives belong to you. That is a very important point and will save much controversy, for then you can make an additional price for surrendering the negative, if this is insisted upon, and such a price generally runs about 50 per cent. of the charge made for the first print.

Quantity print orders should never affect the exposure charge and quantity negatives should not reduce the price of prints per negative. There is also no logical reason why prints from a furniture negative should sell at a different price than that charged for prints from, say, an automobile negative.

Negatives should not be made at a loss, or at no profit just to obtain the print order.

8. Price for prints is as follows:

		Plain.	Backed & Hinged.
8 x 10 or smaller	1 to 11	$0.35	$0.40
	12 to 25	.30	.35
	26 to 50	.28	.33
	51 to 100	.25	.30
	101 to 500	.23	.28
	500 to 1,000	.20	.25
10 x 12	1 to 11	.45	.60
	12 to 25	.43	.50
	Larger quantities correspondingly decreasing.		
11 x 14	1 to 11	$0.60	$0.70
	25 to 50	.55	.60
	Larger quantities correspondingly decreasing.		
14 x 17	1 to 11	$1.00	20% more for muslin
16 x 20	1 to 11	1.25	

Sepia prints 25 per cent. additional, and these quotations refer to prints ordered at the same time from same negative.

ENLARGEMENTS.

The making of enlargements in the commercial shop has often been thought a loss. The possibilities are that when a loss, it was caused by incompetent help, as the quality of commercial enlargements must be good, and good enlargements sometimes take considerable paper to get right, especially in color separation, where every tone must be preserved. Commercial shops doing a large amount of various-sized enlargements generally set upon a price per square inch, and it runs from $0.008 (4/5c.) to 1c. per square inch, with 25 per cent. additional for sepia, also additional for mounting on muslin and stretchers of 25 per cent., for muslin only and with stretcher, $1.00 additional. For standard sizes:

8 x 10 unmounted	$0.65	Mounted $0.85
10 x 12	.85	1.10
11 x 14	1.20	1.50
14 x 17	1.90	2.40
16 x 20	2.60	3.10

Sepia, 25 per cent. additional.

9. Lantern slides form a branch which commercial photographers, in certain sections of the country, have a great deal of, and prices are very low in many cases. The following is a price list from one studio:

Seventy-five cents for single slide, negative furnished; if not, make negative charge same as made for copies. For quantities from same negative, 50 cents. Coloring slides, 75 cents per hour.

10. Model work, in connection with advertising, requires considerable skill and oftentimes the use of a number of plates. Some of them charge $3.00 for each negative, but, among the better class of fellows, it is now the custom to charge at least $5.00 for each position, including model charge and guaranteeing a negative without a move.

11. Blue prints run from 5 to 10 cents for 8 x 10, according to quantity. Photostat prints from 20 to 50 cents, according to quantity.

12. Solar bromide from 15 to 20 cents, according to quantities.

13. Titles for negatives—type composition cost plus 20 per cent. Typewritten, 75 cents for first negative, 25 cents each for additional titles on same order.

14. Coloring. The prices run from 5 cents to $1.25, in addition to cost of the print, governed by the amount of coloring, size and quantity of prints from each negative.

15. Postcards and enclosures for letters. Negatives, $1.25 each.

1 to 50	$0.10
51 to 200	.08
200 to 500	.05
1,000	$35.00 per thousand
2,000	30.00 per thousand

NOTE.—The prices in this chapter are tentative and based on those prevailing on May 1, 1920.

CHAPTER XXIX

BUILDING BUSINESS

BUILDING and holding business, or getting and holding a patronage or following of customers, is something in which we are all vitally interested, and our efforts along that line determine whether we are a drifter or a success. Statistics prove that a man in business cannot stand still, he is either going forward or drifting backwards. None of us wants to say he is drifting backwards, so we are intensely interested in how to push forward.

The commercial photographer comes mostly in contact with business men. Therefore, the methods employed by the portrait photographer in dealing with what might be termed family matters, are totally unfitted in establishing a commercial business. In meeting business men, we must be acquainted with business methods, and everything that is considered sound in general business methods is equally applicable to a commercial photographic place of business.

Big business men are finding out more and more every day that strength of character, integrity and all that goes with it, such as truth and honesty, are the foundation of good business, so we, as commercial photographers, must be prepared along those lines.

The business man, to get new business, uses advertising, personal solicitation, personal letters and his own personal contact with people. Now, let us analyze that system of getting business as applied to the commercial photographer. To my mind, personal soliciting is the one best way to obtain business for the commercial studio. Advertising works very nicely for accumulative effect, but I know of very few of the large commercial photographers who use newspaper advertising to any great extent. It seems to not reach the people they want to interest.

A man in this business, in the course of a year, meets a good many people both in and out of business. The more people he meets out of business the more he will eventually meet in business, so it can be considered a mighty good thing to belong to several good clubs if the opportunity arises. I know from personal experience that it helps.

Of course, everyone cannot have a good personality, but personality plays a great part in the success or non-success of most businesses. If the operator employed is of pleasing personality, he is more liable to be called upon again than the operator who has an eternal grouch, although the grouch may have the best of the other fellow on ability.

Another effective way of helping to build a business is by sending out special appeals, or letters, you might say, to a select mailing list once a month.

Now this may take several forms. I know of one large company which does somewhat of a national business, and which takes for one month all of the piano manufacturers within a working radius of their studio, sending each one a very small photograph of insert size, very beautifully made, of a piano. This particular print I have in mind was a glossy, double weight print of a piano, with a vignetted base, accompanied by a clever form of letter, which letter, together with an actual example of piano photography, going to piano manufacturers, made quite a hit. The same thing was carried on through several other lines, but, of course, such a procedure could only be posssible in a studio able to cover a large territory. The man in the smaller city will have to hit something in a happy medium and send it out once a month.

I know from my own experience that this is a very effective way of bringing attention to yourself and arousing interest. But it must be followed up by quality work and service, for, no matter how clever you are in advertising and soliciting, if you fall down on quality or your service, which means promising delivery and knowing a few things about the customers' wants, all your advertising and building efforts go for naught.

Quality of work has a great deal to do in building business. I know of many fair-sized studios whose managers think it is economy to employ mediocre operators, kid printers and sleepy delivery boys, and wonder why a paying business is not done. It is becoming known through the business world that the best men you can hire are the cheapest in the long run. Cheap labor means generally poor labor, poor results and WASTE, a tremendous item in these days of efficiency.

While we are on this word quality, I know, from observation, that the best of apparatus, plates, lenses, paper and chemicals, etc., help in building business. Many of your customers in the commercial line are men who know a great deal about photography, either directly or indirectly. Some of them have their own photographic departments for general work, as in the case of lithographers, photo-engravers, roto-gravures, engineers, architects and advertising people. They all use photographs and have more or less knowledge of photography. If you have good apparatus in your place of business, they will know it, you know it, and if you know it and they know it, they have double confidence in you and you have in yourself, which is building business.

To go back to that word "service." It is one of the most-abused words in the entire English language. Service means to help somebody. If a customer comes into your place or calls you to see him, and he is a little undecided as to just what he wants, if you are acquainted with sales plans, jobbing methods and general merchandising and advertising methods; in fact, with the use of photographs, as every commercial photographer should be, you can be of great assistance in telling this man what he wants, and the chances are that you will increase your order many times. Not only that, that customer will think many times later on of what you have done for him.

I have in mind a man now who jobbed an article that was known practically all over the country. He had done some advertising and I had solicited him several times to use photographs. He had always told me that, as his line was known all over, he did not see any use for photographs. But I thought I knew better and was only waiting for a favorable opportunity to bring my views before him in the right way, which came a little later when he wanted to get out a small printed leaflet to accompany his commodity and which necessitated complete photographs of his line. Then I showed him where, by distributing photographs to his jobbers for their traveling salesmen to take out with them on their trips, along with their other photographs, if it did nothing more than remind the retailer that the line was still on the market, it would do some good. He reluctantly placed a small order. I know he thought he was stung, but when he was complimented by the jobbers on his new move and received requests for more photographs to completely equip their entire sales forces, accompanied by orders for his goods beyond his wildest dreams, he fairly swamped me with work and is a big booster for photographs today.

That is what I mean when I say service. When you show a man where he can sell more goods by the use of photographs, you are helping that man as well as helping yourself, which is service, and when you give service you are building business.

Another way service comes in is promising and delivering orders. I was in a commercial studio not long ago when a customer came in and was told by a photographer, "Mr. X, your prints are not ready. I was sick and will have to give them to you tomorrow." I know the customer was disgruntled, and I know if he gets half a chance he will not go back there again. This happened several times during my brief visit. A business man's word is considered one of his best assets. We are dealing with business men in commercial photography, so, therefore, not keeping promises is one of the surest ways to tear down a business.

Still another word as to this term "service." Service, to my mind, does not always mean delivering a print to a man in five minutes, even if he wants it, for, as stated above, service means helping people to help themselves. If you give a man something that may only help him temporarily and comes back eventually as a boomerang—that is not service. No print made and delivered in five minutes will give permanent service, except possibly to an engraving house, and is eventually a boomerang to you. If properly explained, it is usually the case that more time can be obtained on a job to the ultimate satisfaction of all concerned.

Again, I have often turned down orders from people I knew could not use photographs effectively. Unless you can see some real use for them, it is better to discourage their use. I know of a concern, which had an extensive line of photographs made, which were not the right kind and did not prove any help to them, with the result that they became soured on the whole photograph business, and no one has been able to interest them since.

Now, as to soliciting. Personal soliciting is by far the best way of building business. I know from experience that it is mighty tough, and in looking back over the time I was solicitor for a commercial studio in a large city, I remember now that it was one of the toughest and most discouraging times of my life. It is the most gruelling experience one can have, and again, when you know how and business comes good, it beats baseball, war and everything else for excitement and exhilaration. I have never felt so good in my life as I have after closing a good-sized order, and I have never felt so bad as to be walked out of an office in front of all the clerks, practically "kicked out," because I did not yet know my business and could not interest the man.

Now, for a few points as to successful soliciting. If you get in to a man, I do not care who he is or how busy, and you have something that will help him, he is going to "stop, look and listen." He has no time these days to fool with time-wasters, so the first thing is to have something that will interest him, and which, if he buys, will help him. To take a concrete example. We will say a man is a manufacturing confectioner. He has from twelve to fifteen and more salesmen on the road selling a very perishable commodity, which necessitates a corps of people to keep up the samples and which means the breaking of boxes of goods at a great expense, especially when the particular goods happens to be jobbed for some other manufacturer. Even with the greatest of care, the salesman will often find, long before completing his trip, that his samples are in poor shape, or, in case of chocolates, he cannot carry them in hot weather. Also, his complete line of boxes cannot be shown as it would be impossible to carry them. You know all this before you go to see a man, and, in going in to see him, you have something to interest him if you have a portfolio of colored photographs of candy. It interests him—why? First, because it is his own line, and, second, you have something that will help him—help him how? By saving him from three to four hundred dollars a month, if he has twelve to fifteen salesmen, in samples alone. Not only that, the salesman can show the complete line to the customer at all times, and the salesman has no heavy sample cases to hinder him in catching a train. Furthermore, almost anyone likes to look at colored photographs of goods he knows, whether he expects to buy or not.

The foregoing is good salesmanship. Nine times out of ten you will land him if you proceed along that course—have something that will interest and help him and save him money. This example is equally applicable to any concern which has salesmen on the road, whether the commodity be trucks, plows, cash registers, dresses; in fact, any firm that employs salesmen is a prospect for photographs if handled properly.

As for the kind of solicitor to have. I have seen youngsters just out of high school make good, while I have seen old-time photographers fall flat. It resolves itself down to the same thing hereinbefore mentioned—what applies to other lines of business will apply to commercial photography. Good, clean appearing, interested men, who might make good selling other lines, will undoubtedly help your business if backed by service.

A while back I mentioned that it would be well to join clubs, etc. When you come in contact with those people—talk photographs. You will have an opportunity from time to time without appearing to talk shop. Know the interesting things going on in photography and you will have interested listeners. Moving pictures form an excellent opening, and, during the recent war, there were many exceedingly interesting developments photographically, and ability to talk on these developments intelligently could not help but attract listeners, which brings it up to building business. If one had a knowledge of color separation and correction, such as was used by the aeroplane photographers in the war, and could explain those things clearly and simply, it is building business, for it is attracting others to your knowledge of your own line. In other words, be alive, progressive and keep up with the times, not only in photography, but on general business. Read up-to-date magazines. Do not let the other fellow have anything on you. Keep everlastingly at it—do what you know you ought to do, and your efforts will surely bring success.

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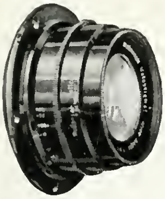

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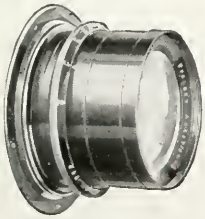

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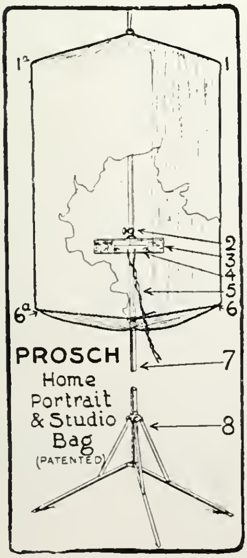

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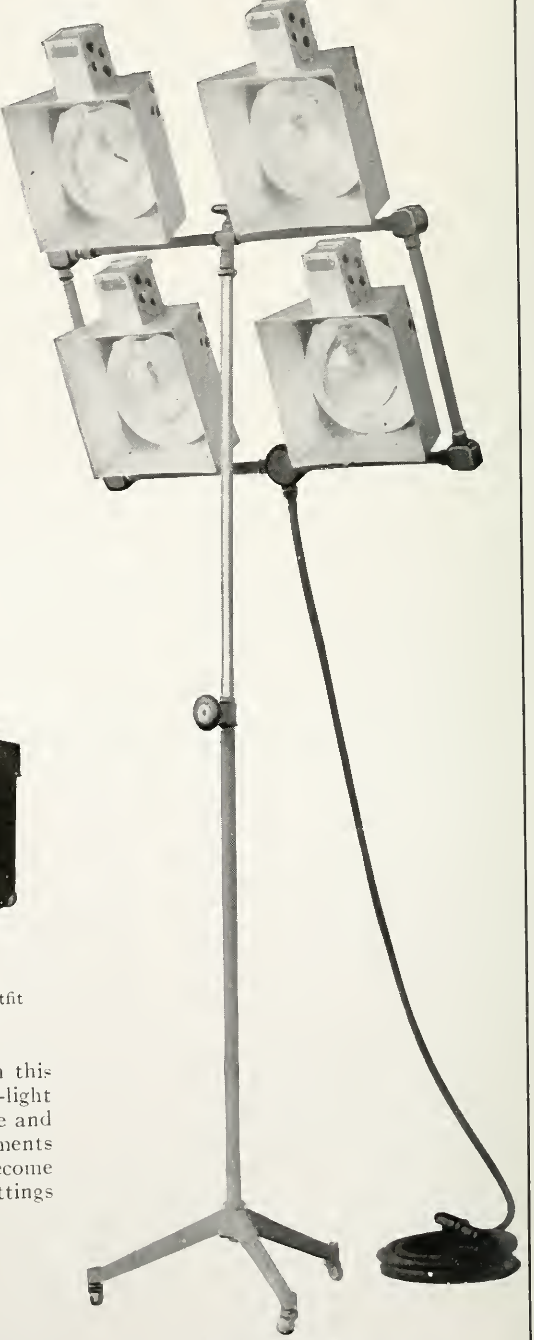

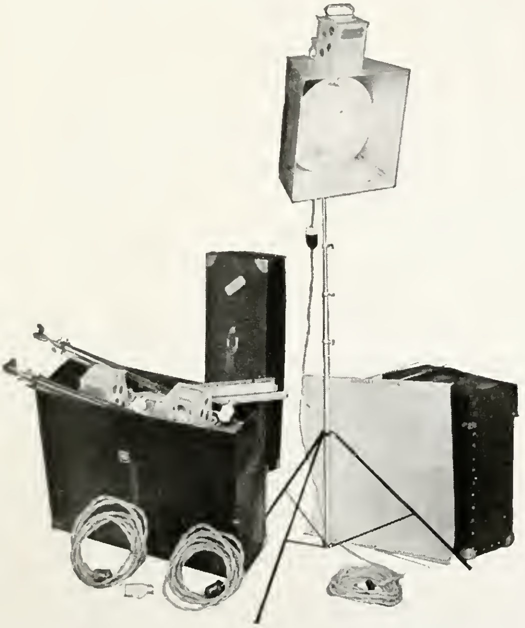

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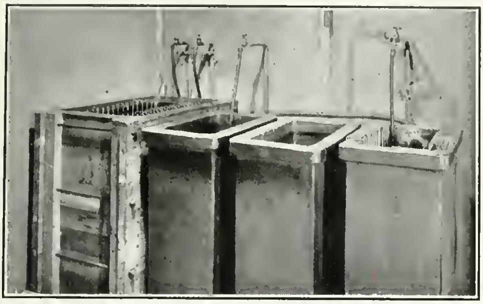

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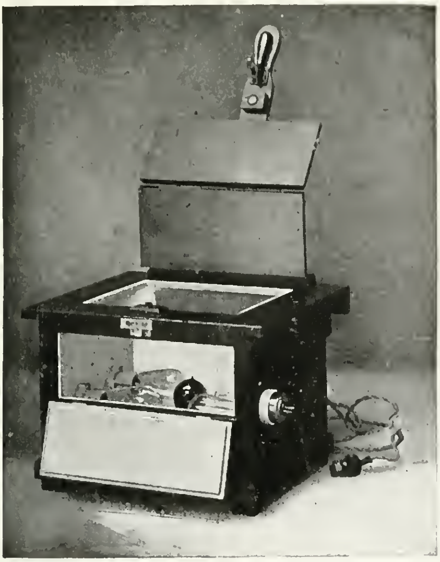

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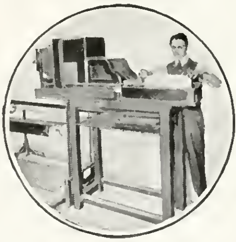

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